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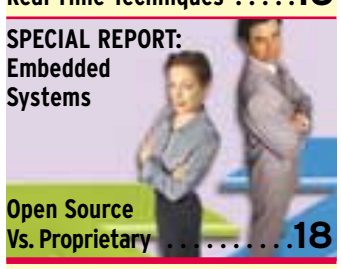
Microsoft Offers Web Services Toolkits 3
Mercury Reveals Risk Management Model 3
Sybase Hopes to Attend School With Apple 3
Anysoft Tackles EAI With App Abstraction 4
Visual Numerics Releases Library for Java 4
Altio Plans 'Executable Internet' for Handhelds 7
NuSphere Demonstrates Linux PHP Editor 7
Sun: J2EE 1.3 Has Industry Support 8
Bowstreet Offers FastTrack to Web Services ..10
Web-Based Defect Tracking on Segue's Radar ..11
Noetix Looks Beyond Oracle Applications 13
VistaPortal Bundles Tools for StarOffice 13
Micro Focus Gets CICS Out of COBOL 14
AirClic Puts Enterprise Apps Behind Bar Codes 16
ESC Emphasizes Communications, Wireless, Real-Time Techniques 16



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C++ BUILDER GETS REBUILT

Borland targets Linux, Web services

BY ALAN ZEICHICK

Only a few weeks after releasing a significant update to its Object Pascal-based Delphi development environment for Windows, Borland Software Corp. has introduced a new version of C++ Builder, also for Windows, and unveiled a cross-platform tools strategy that encompasses Linux.

C++ Builder 6.0, which was scheduled to ship on Feb. 5, is the first version geared toward XML-based Web services, according to Alison Beane, senior director of product marketing and business development, who said that the new version includes the same Web services capability as Delphi, including the ability to both publish and subscribe to XML-based Web services—but ultimately not just on Windows.

"Borland's Web services strategy is to bridge the gap between Windows .NET and Java, and Linux as well," said Beane. "What we've brought to the marketplace has been Delphi, and on the Linux side has been Kylix. We have a strong cross-platform story between both of those platforms today. We're now adding C++ Builder on the Windows side, and we'll be able to take C++ development cross-platform also to the Linux market."

Beane discussed three separate launches. In February, she

▸ continued on page 8

Rational Brings Design Tools Into Java, .NET

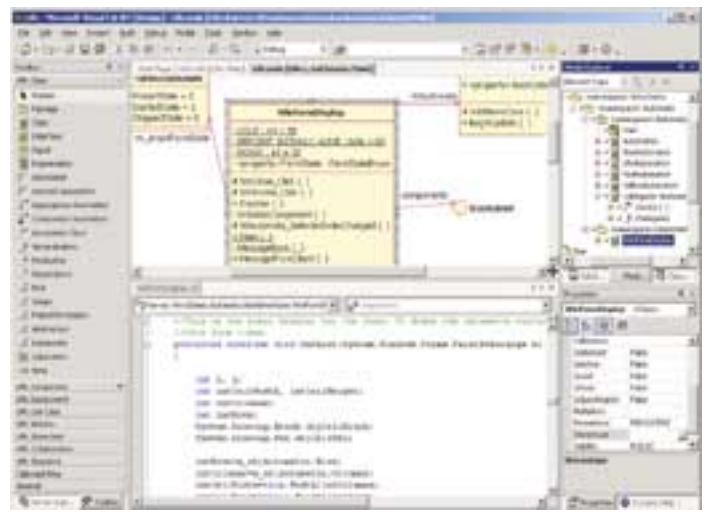
XDE introduces modeling elements to code-centric development teams

BY DAVID RUBINSTEIN

In an attempt to eliminate the gap between application design and development, Rational Software Corp. on Feb. 5 was slated to release what it calls an extended development environment that incorporates modeling tools within both IBM's WebSphere and Microsoft's .NET platforms.

Rational XDE Professional takes the company beyond its visual modeling core by plugging into WebSphere Application Developer or Visual Studio.NET, appearing as native

▸ continued on page 10



Rational XDE appears as native capability within Visual Studio.NET.

Red Hat, IBM: Linux Gets Big

New server, Linux-only mainframe highlights of conference

BY CHRISTINA M. PURPI AND ALAN ZEICHICK

NEW YORK — Even though Carly Fiorina, Hewlett-Packard Co.'s CEO, said in the conference's keynote address that 2002 would be "the breakout year for Linux," announcements coming out of last month's LinuxWorld Conference and Expo in New York didn't reveal any breakout products or trends within the open-source community.

Hank Margolis, vice president of sales and marketing at NuSphere Corp., was disappointed in the attendance. His only consolation was that "at least the people who are here belong here," indicating that attendees were more serious and committed to Linux than the curiosity seekers of past LinuxWorld events.

As of press time, the exact number of conference attendees was unknown and wouldn't be made available until around March. However 4,568 people were preregistered to attend, according to Rich Green, spokesman for show producer IDG. Last year, 5,811 preregistered and 18,839 attended the show, Green said.

FOR MORE ON LINUXWORLD SEE PAGE 16

Among the announcements coming out of the show was the release by **Red Hat Inc.** of a new version of its Linux operating system. Called Red Hat Advanced Server, the software was released for beta testing.

According to the company, Advanced Server, which is based on Red Hat Linux 7.2, includes load balancing and clustering. Paul Cormier, executive vice president of engineering at Red Hat, said Advanced Server will be updated only every 12 to 18 months—instead of twice yearly, as with Red Hat Linux. That benefits enterprise customers, he claimed, "because it's much more stable and has a lengthy life cycle of 12 to 18 months, whereas in the past, apps had to be qualified every six months."

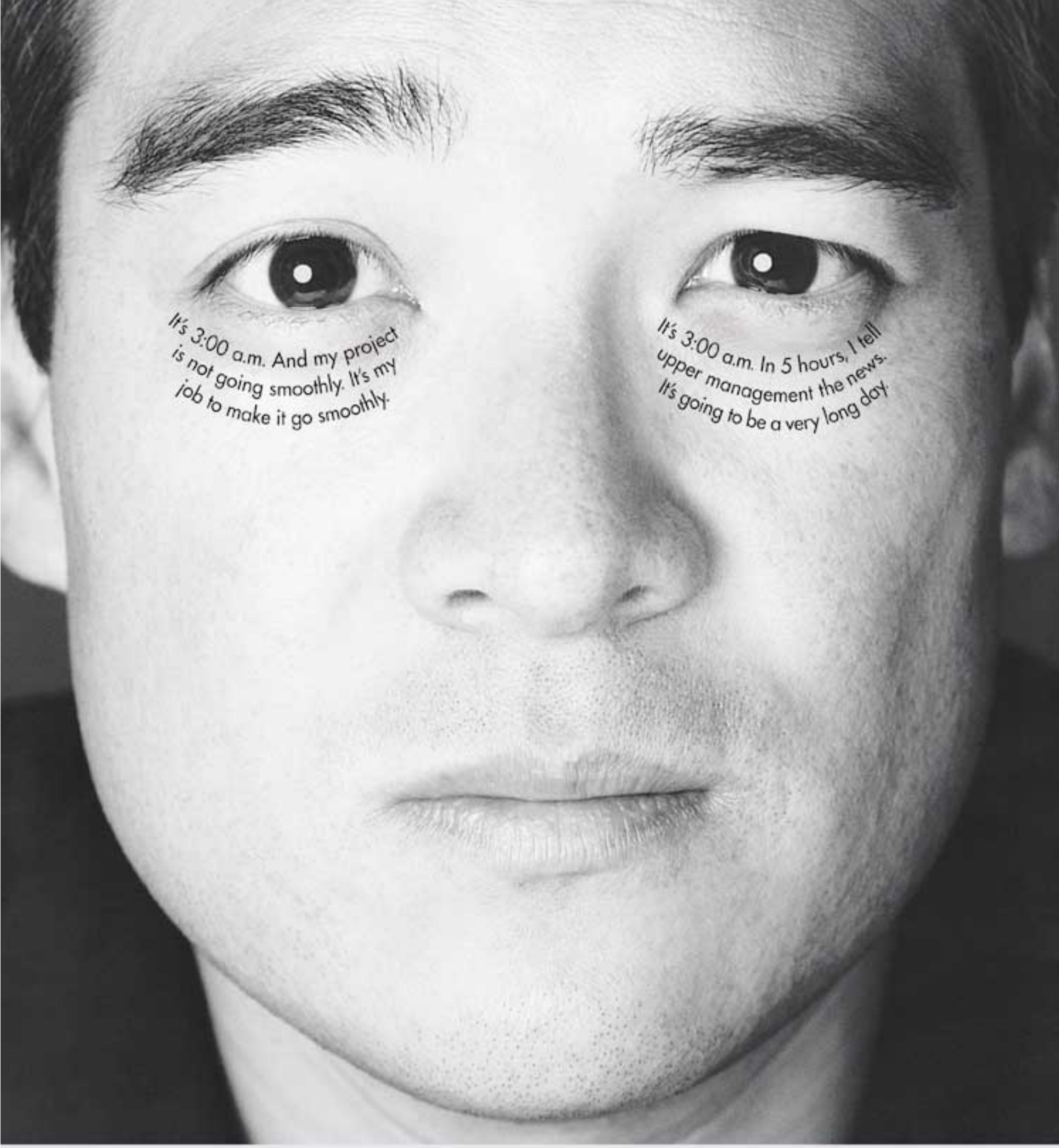
The final version of Advanced Server should be available by midyear, according to the company. Pricing has not yet been released.

Red Hat, as well as two other Linux vendors, are collaborating with **IBM Corp.** on a new Linux-only zSeries mainframe, first shown at this show, and according to Pete McCaffrey, director of IBM's zSeries mainframe group, should be generally available by the end of March.

The new mainframe (www-1.ibm.com/servers/eserver/zseries/800linux.html), which will be labeled with the clever name "zSeries Offering for Linux," runs IBM's z/VM version 4 server virtualization operating system, and above it hundreds of separate virtual servers running Linux. It's built on an IBM zSeries 800-series server, with between one and four processors. The server can run either Red Hat, SuSE or Turbolinux versions of the operating system—the only three distributions that IBM supports on z/VM. The Linux distribution itself is not included with the hardware purchase.

A single-processor version of the mainframe will cost about $400,000, according to McCaffrey.

▸ continued on page 11



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ROGUE WAVE SOFTWARE

Microsoft Offers Web Services Toolkits

New XML-based add-ins released this week for SQL Server, BizTalk Server

BY ALAN ZEICHICK

Microsoft Corp. is now offering free Web services toolkits for two of its .NET Servers, SQL Server and BizTalk Server. Expected to be released Feb. 13 at the VBITS/VSLive conference, the toolkits will be available at no cost from the company's Web site.

The toolkits run as external processes on the midtier servers, according to Jeff Ressler, lead product manager for SQL Server, who described them as proxies.

"SQL Server 2000 already had HTTP and XML functionality," he said. "The XML Web services toolkit expands that functionality." For example, it lets developers make stored procedures and templates available as SOAP-based Web services. The midtier application, included in the toolkit, acts as the SOAP listener, and passes the request to the SQL Server 2000 database for processing, and then returns the results to the Web services client. "The toolkit lets developers select the stored procedure or template graphically, and then creates the WSDL file automatically," he said.

Similarly, said Dave Wascha, product manager for Microsoft's developer division, the toolkit for BizTalk Server 2000 exposes business functions as Web services, so that they can be invoked via SOAP requests. "It lets managed code call business processes, and lets business processes call managed code," he said. Both toolkits include libraries that extend the .NET Framework to make it easier for Visual Studio.NET developers to use those new functions, he said.

Both toolkits will be fully supported by Microsoft, said Wascha. "We're not just throwing software on the Web site," he said. Both toolkits should be available now for download from www.microsoft.com.

Also at the conference, the company was expected to deliver the final version of its XML Web services toolkit for Office XP, which had been in beta since mid-2001. ▮

Mercury Reveals Risk Management Model

Helps assess quality-assurance practices to maximize IT efficiency

BY CHRISTINA M. PURPI

Taking a leaf from the Capability Maturity Model, which helps companies assess and improve the quality of their overall software development practices, Mercury Interactive Corp. has released its own five-level model designed to help companies quantify their testing practices and quality control.

The Application Risk Management Model (ARMM) shows five levels a company or project can attain, from the lowest level, describing an organization with no dedicated quality-assurance personnel and where QA processes are not defined or followed, to the highest level, describing a company that has fully adopted quality models and where test automation is extensively used. This model can be used on a project-by-project basis for smaller companies, or on an organizational level for larger companies, claimed Jonathan Rende, vice president of product marketing at Mercury (www.mercuryinteractive.com).

The ARMM model most relates to the predeployment testing side of a software project. It assesses where a company needs to improve and identifies where on the maturity ladder they fall. Once development managers have performed the assessment, Mercury will help them roll out testing practices and quality-assurance procedures, according to Rende. "ARMM will allow people to plan correctly and educate personnel on when you have to start [testing], where and what you have to do," he said.

"Testing is fundamental to any application," continued Rende. "However, planning for the testing has to be recognized as equally important. It's not good enough to say you have some group that is checking the new application to see if it's working."

The amount of required testing depends on the importance of the application, according to Rende. "If it's not a critical application, maybe it's not that important to be at [ARMM] level four. Maybe you should be spending your time trying to evolve or do the best approach possible on an application that is fundamentally driving millions of dollars in revenue…to be absolutely sure you have a quality model in place, proactive planning, testing and turning."

A lot of projects and companies fail, said Rende, "because people tend to constantly develop, develop, develop, and they're not planning for how it's really going to work…if you don't allow for the time, you're going to run into problems, whether it just doesn't work correctly or it crashes when too many people use it at one time. You're out of business at that point."

Mercury offers a three-day training course on ARMM itself for $2,495. Following the course comes an in-depth report, an on-site assessment and a planning service, with pricing dependent on a company's specific needs.

"We can come back three, six or nine months later like a personal trainer and find out how [a company] is doing, [and] if they need to refine or tune their plan," said Rende. ▮

SYBASE HOPES TO ATTEND SCHOOL WITH APPLE

Ports flagship database to Mac OS X, targets education

BY DAVID RUBINSTEIN

Targeting the Mac OS X operating system as a potential growth area, Sybase Inc. last month announced plans to port its flagship Adaptive Server Enterprise 12.5 database with its client interfaces and to develop a version of its Open Client Internet-enabled development tool for the Apple platform.

Sybase hopes to take advantage of the expansion of education reporting expected to occur under President Bush's "No Child Left Behind" initiative, which will require comprehensive student test result and performance tracking, said Tom Traubitz, senior marketing manager for Adaptive Server Enterprise. Many educational institutions, plus publishing companies and scientific technology organizations, already have Mac hardware in place, and Traubitz said the port of ASE 12.5 to Mac OS X could open avenues of additional revenue from the database. Both products for Mac OS X are due out later this year.

Traubitz said Sybase is investing heavily in creating new relational database technology. Contradicting a statement made by a company executive to SD Times in a Jan. 15 story regarding a shift in the company away from its database core to a broader e-business platform solution ("Sybase Looks Past Database Into New Era," page 1), Traubitz said, "Sybase is an e-business software company of which the database is a key component. Our foremost product is a relational database, but as a company we're much more…. We haven't conceded the [database] market."

Traubitz pointed out what he called two significant trends in the relational database market—data management and content management. Traubitz said in the area of data management, "the amount of data companies use is outstripping the amount of available labor" to manage it. Dynamic tuning is the key technological advancement in this area that will allow database administrators to make changes online, without having to shut down the database. He said in ASE 12.5, Sybase added numerous features to avoid having to shut down the database for performance tuning, and he expects some sort of self-monitoring software to evolve out of this in the next two years or so.

In the area of content management, Traubitz echoed others in the industry who acknowledge that more data is acquired and stored in an unstructured form, and needs to be accessed and queried in new ways. "The physical instantiation of data is over a network more and more," he said. "And, there is more happening on the question side; questions for text are different than questions for financial data." ▮

News Briefs

COMPANIES

Acucorp Inc. has partnered with **Gersoft Hispania S.L.** to offer migration solutions for developers that have RPG or COBOL applications running on AS/400 platforms. The new program will help migrate these applications to Unix or Windows . . . **IxiaSoft**, a division of Ixia Inc., and **i4i Inc.** are partnering to offer integration compatibility between i4i's Tagless Editor, an XML content editor, and IxiaSoft's TextML XML server. The agreement covers not only the compatibility efforts but also joint sales and marketing . . . Embedded systems tools maker **Lineo Inc.** has ported the open-source Real-Time Application Interface (RTIA), a microsecond-scale real-time scheduler, to the MIPS processors. A generic version of the RTIA port, which runs on Lineo's Embedix SDK 2.0, has been contributed back to the open-source community; a supported version costs $1,495 . . . **QuickStream Software Inc.** is working to integrate its e-Content Management Platform with **NeoCore Inc.**'s XML database server. A beta version of the integration is available, and the project is expected to be completed by March . . . In late January, **Palm Inc.** completed the spin-off of its Palm OS subsidiary. Palm will license the operating system back from the new company, which still lacks a name.

PRODUCTS

Indigo Rose Corp. is offering an updated software installer for deploying applications via CD-ROM or IP-based network. The Windows-based **Setup Factory 6.0** adds new drag-and-drop action and flow controls using IF, WHILE and GOTO. It also allows HTTP download, CGI form interaction and Windows Registry editing capabilities. The tool is priced at $395 per developer, with no runtime royalties . . . Parasoft Corp. has updated its **C++ Test** unit-testing tool. Version 2.0 can work with multifile applications, resolve external functions from the source code using any libraries, and allows value ranges within automatically generated test cases. Available for Windows and Linux, the tool is priced at $2,495 per user . . . Software configuration management developer McCabe & Associates Inc. has a new version of its **TrueChange** application. The version 2.6 release lets developers specify which TCP port the application will use, so that users can collaborate through firewalls. It also has new forms, toolbars and menus, as well as a cross-platform installer for Linux, Solaris and Windows. TrueChange costs $2,200 per developer . . . MKS Inc. has updated its **MKS Toolkit**, a set of Unix-like utilities that run on Windows. The MKS Toolkit 8.0 release adds the Secure Shell, telnet, Xterm, event logging, the TCL scripting language, GNU's awk and Perl 5.6. Software pricing begins at $359 per developer . . . PolarLake, a division of XIAM, has released a new version of its namesake XML and Web services platform. **PolarLake 1.2** now includes automation tools for creating Web services from existing EJB, Java or COM applications. The software also includes a new IDE for building rules-based Java applications, as well as a distributed application management console . . . ProSyst Software AG has updated **mBedded Builder**, an IDE for building embedded applications using J2ME. The new version 5.0 supports the OSGi Specification Release 2, and has new provisions for team development and for letting programmers work on multiple projects simultaneously . . . Microsoft Corp. has put its **Commerce Server 2002** into a public beta, with the final version scheduled for release this spring. The new release is designed to work with the company's .NET Framework and Visual Studio.NET, and includes new features for user profiling, content personalization, catalog management, globalization and business analytics . . . Serena Software Inc. has integrated its **ChangeMan DS** change management system with Borland Software Corp.'s **JBuilder** Java IDE. The companies claim that the combined tool lets teams better coordinate changes and collaborate on the development of EJB-compliant components. Developers can now access ChangeMan's functions directly from within the JBuilder IDE . . . Seapine Software Inc. has ported its **TestTrack Pro** defect tracking system to Mac OS X. The current release, TestTrack Pro 4.5, also runs on Linux, Solaris and Windows . . . FMS Inc. released **Visual CodeTools for Access 2002**, a set of 12 code-generating ▸ continued on page 13

Anysoft Tackles EAI With App Abstraction

Digital Cortex provides access to Windows widgets

BY ALAN ZEICHICK

Newton, Mass.-based start-up Anysoft Inc. plans to tackle enterprise application integration from the client side. Its Digital Cortex tools and runtime middleware, scheduled to begin shipping in April, abstract local applications running on Microsoft's Windows, either written using Visual Studio or running in a browser, and provides programmatic access to their on-screen widgets, including menus and input fields, using its own APIs.

"We're breaking the barriers down between applications. A big challenge is that applications, even from the same vendor, aren't fully integrated. For example, in [Microsoft's] Internet Explorer, you can't do a spell check, but you can spell check in Excel and Word," said Brian Cleary, vice president of marketing at Anysoft (www.anysoft.com). "Our technology and our company were born out of this frustration," he said, explaining that Anysoft's founder, Illan Poreh, worked at a financial services company that needed to roll up reports, but because each office used different applications, this was difficult.

"He wondered, 'If I can see the data, why can't I integrate it? Why can't I grab data from one application and get it to work in the other applications?'" said Cleary, "and that was the inspiration for the Digital Cortex product line. Digital Cortex decodes Windows, at runtime in real time, enabling every Windows-viewable application to be a programmable object. For developers and ISVs and OEMs, this gives programmatic access to applications that you didn't have before—a whole new front-end approach to integration and to solving the back-office integration challenge."

"What we allow you to do is abstract out the details of any application to a higher level," added Matthew Dunn, the company's technology evangelist, who liberally sprinkled his comments with words like "revolutionary" and "huge." "Our methodology lets you take the various widgets that you see on the screen—text boxes, windows box, things like that—and turn them into programmable objects," he said.

"Developers no longer have to understand the specific implementation of an application," Dunn continued. "You don't have to retool [your integration] for every specific application. For example, if I'm working with SAP, I don't have to understand 10,000 functions that allow me to manipulate the data and functionality of SAP. For every packaged vendor out there for whom extensibility is critical and adaptability is critical, this gives them a toolkit that lets them work with any application they're likely to find in the client environment. It works for any application, whether it's a Win32 app or an AS/400 viewer or a browser, and provides a universal API to developers."

Dunn emphasized that Digital Cortex is very different from screen scraping. "It's a lot more intelligent than screen scraping. We don't rely on pixel maps, and we present functionality in context. For example, if you're working with a text box, it's not like we're saying, 'Click in this x and y coordinate.' You can literally work with that object as if it were a programmatic object. If you're a Visual Basic object, you can work with that text box natively as a text box." He explained that the Digital Cortex "universal API" consists of a set of ActiveX controls plus a visual designer that is used to identify the widgets in a targeted application.

"The Digital Cortex Developer Edition works in conjunction with popular Visual Basic tools," added Cleary, as well as Visual C++ and Delphi, with PowerBuilder coming soon. "In mid-2002, we'll also have Java wrappers for these ActiveX controls, so Java developers can access Windows applications in their native [Java] IDE."

Digital Cortex comes in a developer version and in separate deployment versions for Windows desktop clients and server applications. The developer version costs $495 per seat. Deployment of applications onto desktop clients will cost $1,200 per seat. Server applications can be deployed for $7,500 per processor for a single non-load-balanced server, and $11,500 per server processor for a load-balanced dual-server configuration.

The developer and single-server versions should be available the first week in April, and the dual-server version in June, said Cleary, who added that there will be a third server version in early 2003, for advanced load-balanced clustered configuration with extra management functionality. Its price will likely be $15,000 per processor, he said. ▮

Visual Numerics Counts on Java

BY ALAN ZEICHICK

Visual Numerics Inc., whose IMSL mathematics and statistics library has been a basic tool for FORTRAN programmers since the early 1970s, has released a version of the library for Java developers.

The new JMSL library, available now, is a subset of what the company calls the most-used algorithms in the IMSL pantheon, focusing on complex arithmetic, Eigensystem analysis, integration, differentiation, nonlinear equations and statistics. In addition, it includes a two-dimensional charting library with algorithms for x-y plots, pie charts and bar charts.

Visual Numerics (www.vni.com) also offers IMSL mathematics, statistics and charting libraries for C and C++.

The Java version of the libraries carry license fees beginning at $5,000, depending on the number of concurrent users. According to the company, the libraries can be used on Linux, Unix and Windows. ▮

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Altio Plans 'Executable Internet' for Handhelds

Will create XML user interface platform for J2ME devices

BY DAVID RUBINSTEIN

Altio Inc., which sells the AltioLive user interface platform for XML, plans to release a scaled-down version by the end of next month that supports J2ME-based devices, and also allows users to work offline.

AltioLive separates data from its presentation, which the company claims speeds the time it takes to relay information from server to client as well as reduces the need for bandwidth by having the presentation assembled on the client, not the server. "It's building better apps than HTML," according to Dave Levett, founder and CTO of Altio (www.altio.com).

The AltioLive platform consists of a presentation server that runs on a Java-compliant application server and an applet client. The server is designed "to quickly go from XML to something that looks like a full-blown app with no coding," said Levett. "AltioLive takes all the concerns of connections and presentation so developers need only worry about the underlying logic." The notion of using the power of a client device to reduce the size and number of transmissions crossing between client, server and back end is part of what Forrester Research Inc. is defining as "the executable Internet," in which server-generated HTML page renderings are replaced by local executable programs.

Once users access the AltioLive application through a browser, the client is downloaded, containing an XML database with Xpath query capability, a UI design tool and a rendering engine. XML data is queried out of back-end repositories and stored in the client database. The job of the presentation server, Levett, said, is strictly to keep the client-side database up to date.

Developers create desired interfaces with the design tool, and the rendering engine mixes the XML data with the predefined interface information, converting it all into pixels, presenting what appears to be a fully coded application, Levett explained. The underlying logic is held in packaged systems such as PeopleSoft or other ERP applications, he added. Only changes to data pass over the network—XML over HTTP—yielding fast response times and low bandwidth requirements, he said.

Levett noted that a separate client for J2ME devices was necessary because the platform will need to work with the interface API of the particular device. "It might not be pixels; it might be LED readouts," he said, adding that Altio has been focusing on real-time trading to demonstrate what he called the effectiveness of the application.

Levett said he is trying to overcome a barrier to acceptance—developers, who prefer to write their own HTML code even if that's a more labor-intensive process. "Getting applications appropriate for their business and customers out the door is the developers' value," Levett said.

Altio is working on a downloadable client application—"maybe 500K [of memory] or less," Levett said—that will allow users to work offline and have local information automatically resync with the AltioLive application upon the connection being restored. That also should be available within the next few months.

A version of the AltioLive platform that supports polling clients sells for $25,000 for the first server, with multiple-server discounts available, Levett said. A version that can stream data to clients, and which also allows real-time failover, sells for $75,000 per server. ■

NuSphere Demonstrates Linux PHP Editor

Graphical development environment claimed ideal for Web services

BY EDWARD J. CORREIA

Open-source tools integrator NuSphere Corp. has demonstrated a Linux version of PHPEd, an integrated development environment that the company claims gives developers a graphical way to create and debug PHP-based Web pages. It was showing the new tool at the LinuxWorld Conference in New York City earlier this month.

Britt Johnston, CTO and cofounder of NuSphere (www.nusphere.com), said the product offers Linux developers some firsts. "No one has been able to graphically debug a running Web site in a Linux environment," he claimed. Using the tools, he added, developers "can see an individual user, look at their session, watch the variables and logic get executed as you step through the code, and see what is rendered to their page." Until now, Linux developers have used text-based editors when working with the PHP language, he said.

PHPEd lets users debug a running Web site, according to NuSphere's Johnston.

According to Johnston, NuSphere's business has consisted mainly of integrating existing open-source tools into more usable solutions that work across Linux, Unix and Windows. "Two years ago that space was unknown, and people weren't sure what was happening. But Linux was getting a lot of play, and that has come around to other parts of the open-source marketplace."

Johnston said that PHP also can be used to generate Web services. "We're trying to get people to understand that you don't have to change your programming language to C# or Java to write Web services. You can build Web services with PHP or Perl." The editor also supports Perl and Python scripting languages, he said.

PHPEd is scheduled to begin shipping this month. Prices start at $299 per developer seat. ■

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Sun: J2EE 1.3 Has Industry Support

Unveils five platform-compliant solutions at Partner Launch Event

BY ALAN ZEICHICK

If there's a message that Sun Microsystems Inc. wants you to know about Java 2 Enterprise Edition, it's that the latest release has lots of industry support. Lots of partners, lots of products, lots of developers. At least, that was the feel from the company's J2EE 1.3 Partner Launch Event in San Francisco, held at the end of January.

As of last month, according to Rich Green, vice president and general manager of the Java and XML Technologies Group at Sun, there are 21 companies currently delivering J2EE 1.2-compatible products. Green cited Gartner Inc. numbers, saying that 80 percent of all enterprises worldwide are using the Java language today. "That doesn't mean that all of them are using the advanced J2EE platform," he admitted, "but there's a swell of energy around Java."

For those who select J2EE-compliant products, "more than 90 percent are happy and would do it again," he added, claiming that 78 percent to 80 percent of companies are using or will use J2EE as the basis of their Web services platform. "There is a lot of noise in the industry about when Web services will become a reality.... Many people are waiting for .NET to deliver Web services, while in fact, worldwide, Java is powering effective creation and deployment of Web services going forward." Green then cited Sun's own Web Services Developer Pack, just released in a preliminary Early Access version, as a demonstration that it's possible to build Web services on J2EE today.

Taking another Sun-style swipe at Microsoft, Green continued, "If you look at this list [of J2EE partners]...there aren't any omissions of enterprise software vendors—and I mean *any* omissions of *enterprise* software vendors."

Green then claimed that J2EE 1.3 adoption by programmers is running 56 percent faster than that for J2EE 1.2 during a similar amount of time after introduction of the specification.

He then introduced the five vendors that have currently developed products that have passed the JCP's J2EE 1.3 compatibility suite: Computer Associates, with its Advantage Joe development suite (formerly known as Cool:Joe), IBM's WebSphere, Pramati's Server 3.0, Sybase's EAServer 4.1, and Trifork's Application Server 3.0. A list of products that are currently compatible is at http://java.sun.com/j2ee/compatibility.html. ■

C++ BUILDER

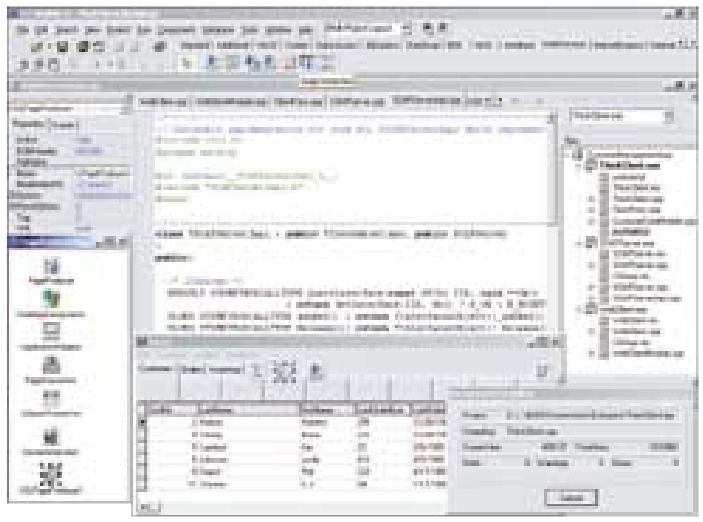
◂ continued from page 1

said, the first deliverable will be the C++ IDE for Windows. "In Q2, we're looking at Borland C++ Builder MobileSet, which takes C++ development to the Nokia phone and Symbian OS-based platform," she said. MobileSet will be an add-in for C++ Builder 6.0 for Windows that can be downloaded from the Borland Web site. "A little later in Q2, we'll be announcing our true Borland C++ for Linux product," she added.

"There is a huge market opportunity for C and C++," Beane continued. "It's definitely the primary language for application development. It's easy for Java to steal the spotlight, but the reality is that C and C++ have a tremendous following. We've seen that C++ is being used predominantly in larger accounts where there are Unix-based systems and C++ has always been the dominant development language. Some of those systems are being moved over to Linux as well."

The Linux version of the product—which Beane stressed had not yet been named, and it's undecided exactly what will be included in the package—is actually the culmination of the original Kylix project, which had intended to port both the Object Pascal-based Delphi and C++ Builder for Windows tools to Linux, Beane said. As the project progressed, the "Kylix" name became associated solely with the Delphi port, and the C++ version slipped further and further behind.

"It may be a little later than expected, but we're getting ready to deliver on C++ [for Linux]," said Simon Thornhill, general manager of rapid-application development solutions. "It's very timely. You're going to see a lot of people with legacy Unix applications; they're going to be able to bring them onto Linux using the Borland C++ RAD solution to get them running, and then extend them with Web services. That will allow them to integrate [the apps] with other systems that their company has put into place."



C++ Builder for Windows 6.0 includes functions for implementing SOAP, XML and WSDL-based Web services.

When asked if a natural area for future tools development, once the C++ Builder for Linux was available, would be to port C++ Builder or Delphi to the similar Unix and Mac OS X operating systems, both Thornhill and Beane refused to comment. "If I told you that, I'd have to kill you," laughed Thornhill. "We're not talking about that at this stage." Specifically about Mac OS X, Beane added, "There's a lot of talk and a lot of interest in that area, but nothing to make any announcements on today."

DOING WINDOWS

The new C++ Builder 6.0 for Windows, emphasized Beane, is real C++. "There are some differences—you'll be able to build cross-platform-ready apps [for Windows and Linux]. When we ship C++ Builder for Linux, you'll be able to build true cross-platform applications. It's the same power and functionality that we've taken to Delphi and Kylix with Web services and EJB extensions."

Both the professional and enterprise versions of C++ Builder 6.0 can consume XML-based Web services, explained Beane, using SOAP and WSDL. In addition, they both include Borland's Component Library for Cross-Platform (CLX), which is also included in Delphi, and have database drivers for not only Borland's databases, but also Microsoft's Access and MySQL.

The professional version is priced at $999 per developer seat, up from $799 for C++ Builder 5. "It is a slight increase," said Beane, "but it takes into consideration the Web services and cross-platform capabilities."

This is a change from Borland's earlier tools, in which the ability to consume Web services is a feature only in the enterprise version of the product, though Beane indicated that the other products might later add that functionality into the base-level IDE.

The enterprise edition, geared toward making server applications, adds the ability to serve Web services, and to integrate JavaScript, VBScript and other server-side scripting languages into the applications. It also has CORBA links to Borland's Enterprise Server app server, and database links to DB2, Informix, SQL Server and Sybase. The enterprise edition is priced at $2,999 per developer, up from $2,499 from the earlier version.

What about a multi-tool suite version of C++ Builder, similar to what Borland recently announced for JBuilder? "Not at this time," said Beane. "We will be making further announcements in regard to that suite of products over the coming months. That's definitely something that's on our radar. But we needed to release C++ Builder first." ■

BORLAND ACQUIRES OPTIMIZATION TOOLS COMPANY

In a move to broaden its product offerings, Borland Software Corp. late last month announced it had acquired Redline Software Inc.—also known as VMGear—in a cash deal valued at about $8 million.

VMGear created the OptimizeIt suite of application performance assurance tools, including a code profiler, debugger, thread analyzer and code coverage analysis tool. "Historically, Borland focused on the core development environment," said Tony de la Lama, vice president and general manager of Java solutions for Borland. "We're expanding into areas that aren't the core nuts and bolts of coding."

OptimizeIt, said Axel Kratel, Borland's senior product manager of Java solutions, gives views into the code during all phases of the application life cycle. "This is not just for integration into IDEs," he said, "but for all Java developers." Kratel did say that going forward, Borland will improve the integration of the OptimizeIt tools within its JBuilder IDE.

—David Rubinstein

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RATIONAL XDE

◂ continued from page 1

capability in the development tools. Another version ships with the new Eclipse open-source application development framework, allowing developers who don't already use other IDEs to create Java applications. The Java applications created by the WebSphere version can be deployed to other J2EE 1.3-compliant application servers, so long as IBM's proprietary extensions are not written to in the code, he said.

"XDE is a departure for Rational," said Bill Taylor, Rational's director of marketing for the practitioner and desktop group. "The design tool becomes as much a part of the IDE as a code editor or debugger." TogetherSoft has tried this, Taylor acknowledged, but required developers to use the company's own IDE.

XDE includes a fully functional modeling tool, a code pattern engine and 60 patterns, Rational Development Accelerators (RDAs), free-form modeling capability for non-UML diagram elements and multi-modeling capability, Taylor said. It also is tightly integrated with other Rational tools such as ClearCase and the Unified Process, although Taylor said the first-version integration with the RequisitePro requirements management tool isn't as tight as the company would like.

While saying the environment is complementary to the Rose UML modeler and the rest of the Rational Suite of tools, Taylor emphasized that XDE does not signal the end of life for Rose, which he said will continue to be the solution offered to users of other IDEs, such as Borland's JBuilder, IBM's VisualAge and Sun's Forte. Rose Enterprise Edition customers will have XDE made available to them as part of their maintenance agreement.

In XDE, developers can synchronize the model and code; a split screen shows immediate updates to the model when code is changed, and vice versa, Taylor said.

The patterns and RDAs, he explained, can be customized and help jump-start projects, as well as serve as a mechanism for component reuse, Taylor said. The RDAs are samples and reference materials showing how to create quality applications, while the patterns include those from the "Gang of Four" as well as EJB patterns and Sun Blueprints, he added.

Free-form modeling allows users to make the models more expressive in communicating an architecture, Taylor said, while multimodeling allows developers to break up the model to reference parts of the project with other models outside the XDE tool, and provides traceability between models while assessing and managing the impact of a change to the project, he added.

Rational XDE Professional Java Platform Edition (for WebSphere and Eclipse) and Microsoft .NET Edition sell for $2,995 per user license, while Professional Plus Edition, which includes both Java and .NET editions, sells for $4,195 per user license. ▮

Bowstreet Offers FastTrack to Web Services

BY CHRISTINA M. PURPI

Bowstreet Inc. believes that XML-based Web services are becoming critical to businesses. It claims it can help companies get a jump start into the field with its Web Services FastTrack product suite, which includes its Business Web Factory application assembly software as well as five developer licenses and three weeks of intensive training and services.

"This year, everybody needs to have a so-called Web services strategy. Many companies are scratching their heads, and they don't know where to start," said Steve Chazin, director of product marketing at Bowstreet (www.bowstreet.com).

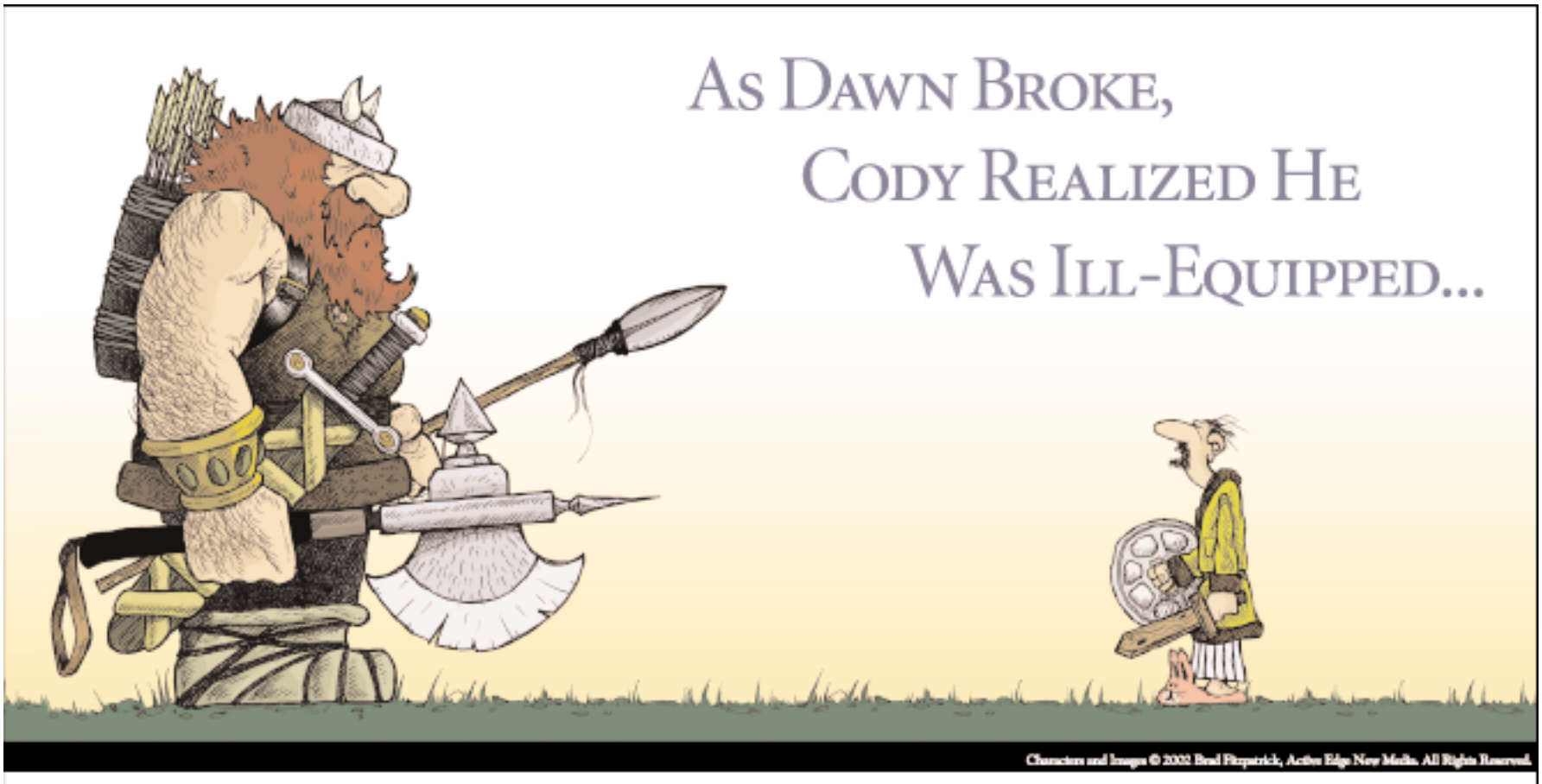
According to Chazin, FastTrack "helps companies develop Web services, it helps to build intensive applications, it supplies three weeks of best practices, and it builds a road map which answers questions such as 'What projects could a company benefit from?' "

Web services strategies are essential, says Bowstreet's Chazin.

Bowstreet's Business Web Factory software automation system has been around for more than two years and is currently at version 4.2. "It's a different type of software that the Web services world needs…it literally assembles applications out of Web services on demand."

After the three-week crash course, companies have the option of continuing with the program or not. If they continue, Bowstreet constructs an action plan unique to the company, said Chazin.

This program, priced at $75,000, is designed for larger companies, according to Chazin. The package includes the Business Web Factory software, a two-hour Web-based training on Web services, a half-day on-site workshop, and three weeks of on-site training by Bowstreet consultants. For smaller companies, Chazin said, "we are evaluating a shorter version for [those] who can't afford to spend $75,000." ▮



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Web-Based Defect Tracking on Segue's Radar

BY EDWARD J. CORREIA

Testing tools maker Segue Software Inc. has released SilkRadar Web, a new product in its SilkRadar defect management line that permits developers and testers to input and track application defects and to access bug reports via a Web browser.

According to the company (www.segue.com), the tool integrates with Segue's software test suite and can extract test results from those tools and route defects to the appropriate person or group automatically with SMTP e-mail alerts.

Mary Kate Sharpe, product marketing manager, said, "SilkRadar supports our bigger brand names, such as SilkTest and SilkPerformer. It's important to offer within the Silk suite, because [defect tracking] is essential to the testing environment." She added that SilkRadar also allows Segue's offerings to bridge engineering and quality assurance departments, but does not integrate with software testing tools other that its own.

SilkRadar Web is available now for $750 per seat, and works with Microsoft's SQL Server 6.5 and 7.0, and Oracle's 7.3 and 8.0 database servers. ■

LINUXWORLD

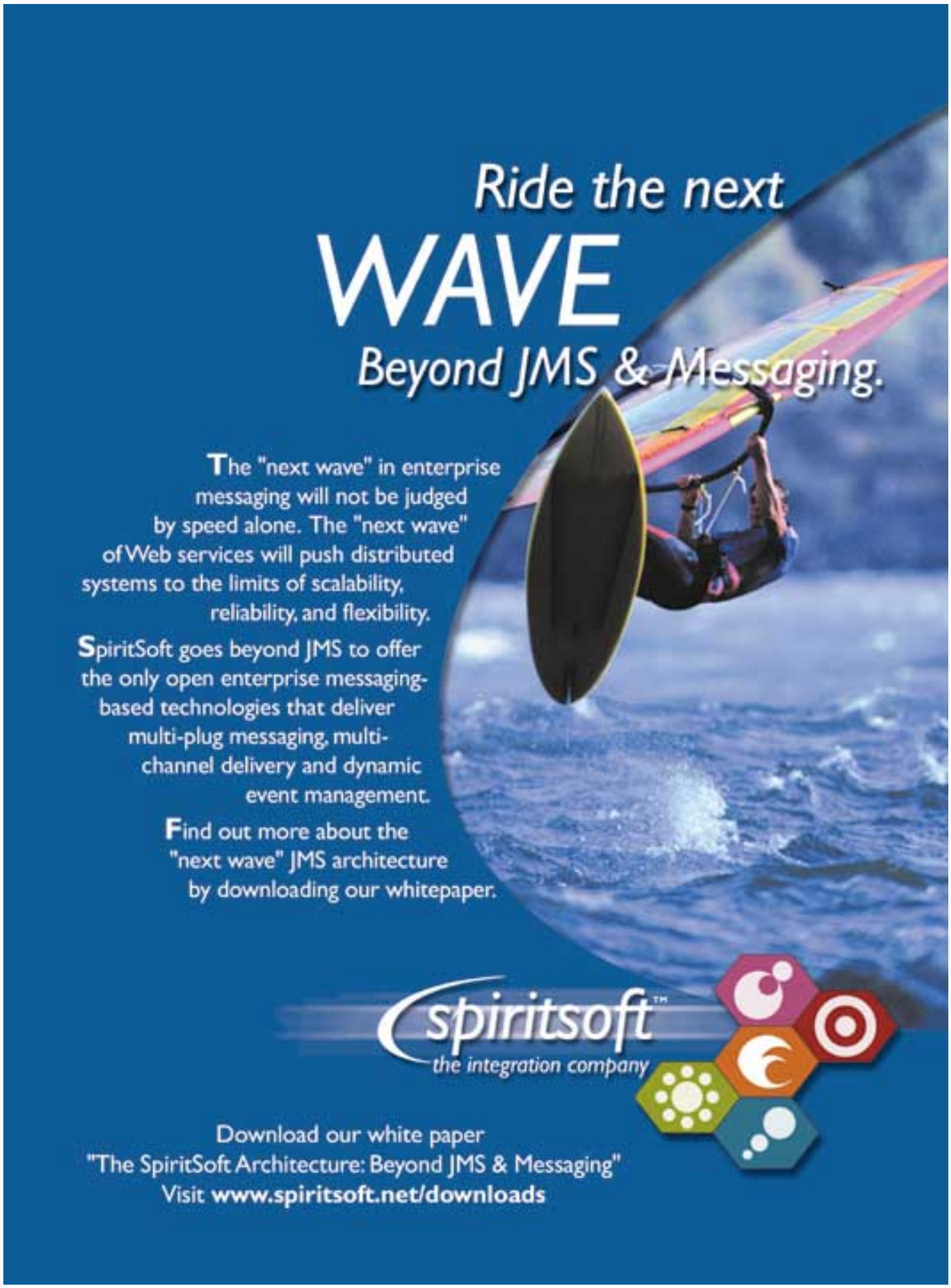
◂ continued from page 1

Eclipse.org, the controversial tools project spearheaded by IBM, announced the release of a C/C++ plug-in for the open-source IDE. Called CDT, the free plug-in is available under the Common Public License (CPL) from www.eclipse.org, and will work with the WebSphere Studio Workbench toolkit, according to Marc Erickson, IBM's project manager, Embedded Software.

"Linux is emerging fast, and the availability of applications will be accelerated," he said. The CPL, Erickson noted, is more liberal than the GNU Public License, and developers will not be required to return any changes or completed projects to Eclipse. The C/C++ IDE is evaluation code but fully functional, he said, and provides the basis for software projects to proceed upon.

The **Open Source Development Lab** (OSDL), (www.osdl.org) a consortium of companies formed to further the Linux course and create standards for development, announced the creation of technical working groups to develop road maps to enable Linux for the enterprise and telecommunications markets. Five new members were also added to the existing 17: Alcatel, Cisco, MontaVista, Nokia and Toshiba.

In other news, **Covalent Technologies Inc.** received $18 million in a third round of funding from Menlo Ventures, with key participation from former investors Sequoia Capital and Granite Ventures LLC. **Serena Software Inc.** announced that its Change-Man DS, a software change manager, will now run on Linux for the IBM zSeries mainframes. **Acucorp Inc.**'s extend5 with ACUCOBOL-GT development environment also will run on the IBM z900 and S/390, according to the company. ■



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EETIMES

Noetix Looks Beyond Oracle Applications

Enterprise reporting system being ported to Siebel, PeopleSoft

BY ALAN ZEICHICK

Looking to move past its Oracle Applications roots, database reporting developer Noetix Corp. is preparing to bring its NETS software to Siebel and PeopleSoft later this year.

NETS, or Noetix Enterprise Technology Suite, is a system that abstracts the data model with an ERP solution, such as Oracle Applications, said Paul Song, president and CEO of Noetix (www.noetix.com). NETS consists of three components, a crawler, a metadata repository and a Web-based application.

Companies upgrading their ERP systems can use NETS to simplify migration, claims Noetix's Song.

First, a crawler automatically extracts the database tables' configuration data, including schema and textual label descriptions, from the packaged application's databases.

That data is stored in XML format in a metadata repository, built on top of Microsoft's SQL Server database. Developers and end users can then define reports that are served by Microsoft's Internet Information Server, making that information available in different forms, such as within a Web browser, Excel databases or mobile clients.

"We're not competing with report writers like Crystal or Brio," said Song. The problem that he described NETS as solving is one of keeping reports in sync with schema changes when an ERP vendor updates its software. Such updates, explained Song, often break reports, because database fields change names or locations. The NETS crawler, however, can detect the changes and adapt to them. In fact, he claimed, companies upgrading their ERP systems can use NETS to simplify the migration process.

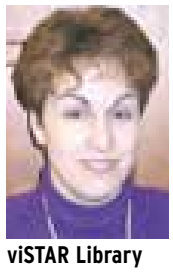
In the past, the crawler and the rest of the NETS technology were very tied to Oracle, and specifically to the Oracle Applications package, said Song. Noetix is now developing a more general version of the underlying crawler and repository, with a release of a version capable of working with Siebel expected in June, and for PeopleSoft late in the fall, he said. These would be followed by tools that can integrate multiple ERP systems, including those from different vendors, into a single reporting structure that could be accessed by business analysts or IT professionals. The price of a typical NETS installation is $100,000 to $200,000, he said. ▮

VistaPortal Bundles Tools for StarOffice

Library, JDBC driver available for monthly rental, purchase

BY CHRISTINA M. PURPI

VistaPortal Software Inc. has combined two of its products into one tool set, Vista Toolbox, and made a monthly rental option available. "There aren't many tools out there that facilitate the use of StarOffice [Sun Microsystems Inc.'s office productivity suite]," claimed Gail Raynus, vice president and co-founder of VistaPortal. That is why VistaPortal (www.vistaportal.com), a professional services and consulting company for more than two years, developed its own set of tools: viSTAR Library and Vista JDBC Driver, still available separately but now combined into the Vista Toolbox. viSTAR Library is a collection of Java classes, and Vista JDBC Driver is specifically designed for working with StarCalc, the spreadsheet application within StarOffice, as well as Microsoft's Excel spreadsheet.



viSTAR Library executes prebuilt code, says VistaPortal's Raynus.

viSTAR Library, specific to StarOffice 6, is a set of Java classes that wrap around the StarOffice APIs. "Instead of writing code, you can say 'create this chart' and the library will go ahead and execute the code that's already built in our tool and give you the results back," claimed Raynus. "This speeds up the development process because instead of working directly with the API in all of its complexity, you use viSTAR Library as the interface for developing on the API, which represents a layer that removes you from the actual API. It's easier because we create chunks of code that aggregate functions that people would commonly use."

Vista JDBC Driver is based on the connectivity protocol designed by Sun to facilitate the extraction of data, and, according to Raynus, "[the driver] does not care where [the data] came from…not only the raw data, but the calculations too." According to the company, Vista JDBC Driver is the only driver that allows applications to extract data contained in StarCalc and Excel spreadsheets. The toolbox includes both Type 3 and Type 4 JDBC drivers.

Vista Toolbox is interoperable with the Sun ONE Web services environment, according to Raynus, and is currently available. It can be rented on a per-month basis for $500, or a one- or two-seat developer license can be purchased for $4,500 for unlimited use. "We wanted to present our product on a trial basis so customers can see how much development can be done," Raynus said.

Looking into the near future, Raynus claimed VistaPortal is working on a peer-to-peer communications environment based on Sun's JXTA protocol, which should be released into alpha testing within the next few weeks. ▮

News Briefs

MORE PRODUCTS

◂ continued from page 4

tools for Microsoft's database. The new tools, which focus on making code adhere to enterprise standards, cost $299 per developer . . . ArtinSoft S.A. has new tools to help Informix 4GL and Oracle Forms 6.0 developers migrate applications to Java. The **Informix 4GL to Java CodeAnalyzer** and **FormsAnalyzer for Oracle Forms** analyze the source code and provide estimated development cost and project duration . . . Sun Microsystems Inc. has released the **Java Web Services Developer Pack**, which combines parts of the previous JAX pack with a JavaServer Pages Standard Tag Library, Ant Build Tool 1.4.1, Java WSDP Registry Server 10, and the Tomcat Java Servlet and JSP container. Many of these components are "early access" versions, not completed code. The pack can be downloaded from http://java.sun.com/webservices/webservicespack.html . . . Sun also is offering a release candidate of the **J2SE 1.4** platform for Linux, Solaris and Windows at http://java.sun.com/j2se/1.4. This version works with 64-bit Solaris, new class libraries, security extensions and enhanced 2D graphics . . . Graphic arts software maker Adobe Systems Inc. has created a Java-based image server with EJB extensions. The new **AlterCast,** which can run on any J2EE-compliant app server, automates image processing tasks such as dynamic photo resizing, graphics personalization, dynamic pans and zooms, and file-format and color-palette conversion. The server contains open APIs and XML commands for interaction with external applications, and is priced at $7,500 per server microprocessor.

PEOPLE

In mid-January, W3C chairman **Jean-François Abramatic** stepped down after serving since 1996. A new chairman has not been named, though the W3C has hired **Steven Bratt** as its new COO. Previously, Bratt served as coordinator of the Comprehensive Nuclear Test Ban Treaty International Data Centre in Vienna, Austria . . . Embedded software developer MontaVista Software Inc. has appointed **Cees Boshuizen** as vice president for European operations. Previously, Boshuizen worked for Sybase and Electronics for Imaging . . . **David Leblang**, a co-founder and former CTO of Atria Software before its purchase by Rational Software Corp., has joined AccuRev Inc. as a technical adviser. AccuRev is a developer of configuration management products . . . OnCore Systems Corp. has appointed **Chuck Colford** as its general manager. Colford, who reports to president **Chip Downing**, most recently worked at Nortel Networks. OnCore is a developer of real-time operating systems . . . VA Software Corp., the former Linux hardware maker that now sells the SourceForge collaborative software environment, has hired **Kathleen McElwee** as VP and CFO. McElwee was most recently CFO at 3DO Co., which made entertainment software . . . Java tools maker Fiorano Software Inc. has two new senior managers. **Amar Rajasekhar**, now onboard as chief marketing officer, was formerly employed by PriceWaterhouseCoopers, eGrail and United Technologies. **David Westin**, the new VP of business development, came from ChannelAutomation, Margi Systems, Acer America and Ingram Micro . . . Artisan Software Tools has a new president and CEO: **Jeremy Goulding** replaces **S. Caine O'Brien**, who left the company in late 2001. Goulding, who had served as VP of international sales, previously worked for I-Logix Inc. until May 2001.

COLFORD

STANDARDS

The OMG, TeleManagement Forum, Open Group and e- and Telecommunications Information Services groups have formed a new group to oversee joint projects. The new **Executive Coordination Council** will meet twice annually to coordinate each group's meetings and workshops, support each other's specifications and promote cross membership . . . The W3C has created a **Web Services Activity Group**, which encompasses several existing Working Groups. The Activity Group is charged with developing a set of interfaces for application-to-application communications over the Internet. ▮

Micro Focus Gets CICS Out of COBOL

BY DAVID RUBINSTEIN

Micro Focus International Ltd. late last month released a new version of its EnterpriseLink Integration Server that now lets developers wrap COBOL source code inside EJBs and then run them on J2EE-compliant app servers.

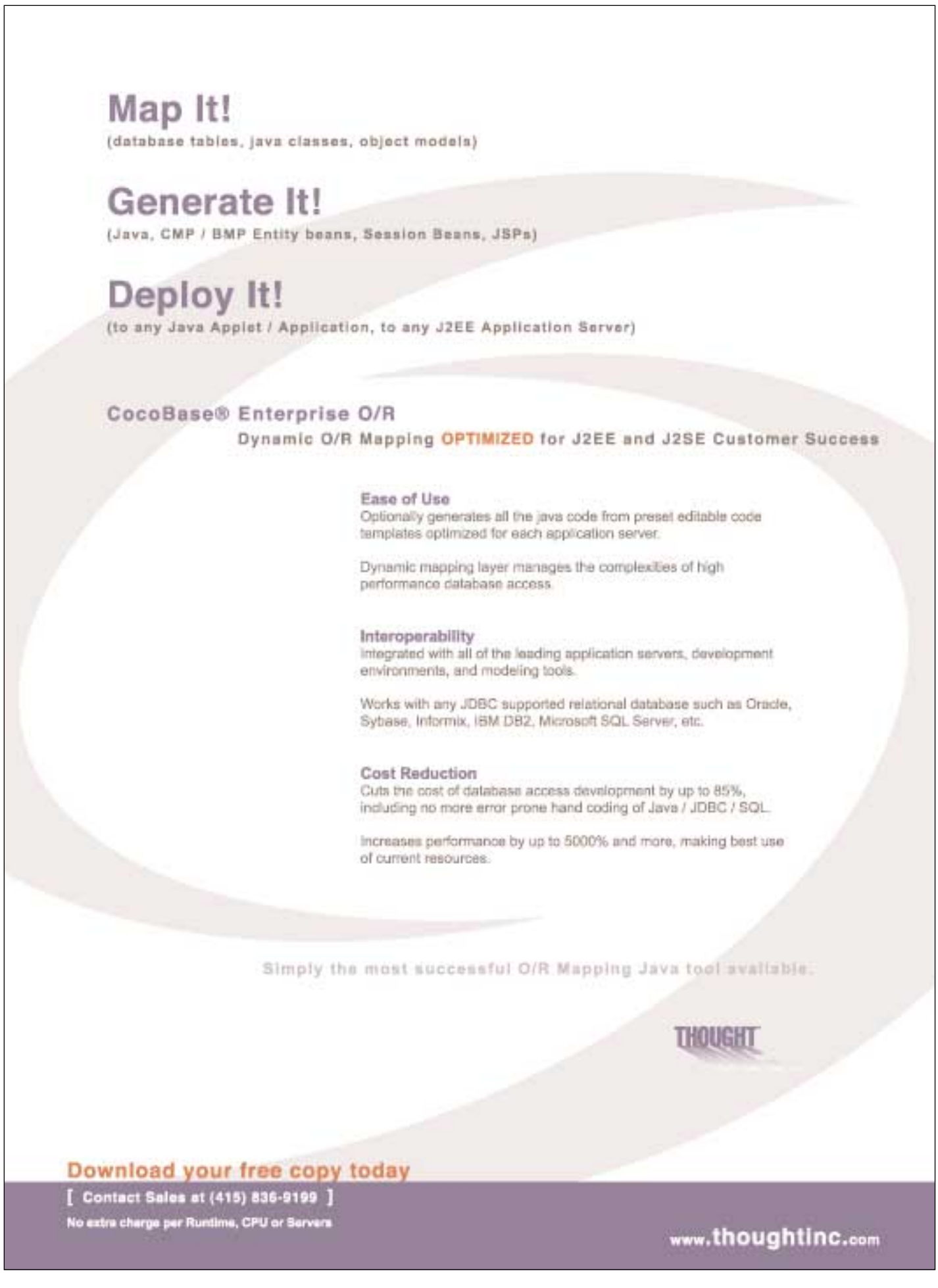
Called EnterpriseLink with Component Generator, the new server lets developers grab business rules or other pieces of mainframe applications and put them inside an EJB wrapper to allow them to be invoked from within any J2EE application, explained Mark Haynie, the company's vice president of enterprise extension. "The goal is to create one customer-facing application that can answer all customer questions," he said, even if the data and forms necessary to fulfill requests reside on different systems. Haynie, who was in Las Vegas for a conference on the effects of the events of Sept. 11 on tourism there, cited as an example someone who uses the Internet to reserve a hotel room, but cannot block out a time for a visit to the spa or for a reservation in the hotel's restaurant.

EnterpriseLink Integration Server runs on AIX, Solaris and Windows servers as the middle part of a three-tiered system, communicating back to mid-range systems and deploying data out to a browser over HTTP, Haynie said. EnterpriseLink with Component Generator, which runs on BEA's WebLogic and IBM's WebSphere application servers, uses IBM's MQSeries for communication between a client and mainframe environments, and allows developers to capture CICS applications for deployment onto other platforms via EJB, XML or COM, he said. By wrapping COBOL in EJBs, Haynie said, developers don't have to rewrite entire applications to deploy them to new environments. The captured transactions and application workflow, now reusable assets, can be assembled into flexible applications called eBiz Transactions.

Component Generator "is more of a programmer's tool" than the integration server, said Scott Witkin, a senior developer on the Component Generator team. "Developers can aggregate one or more CICS transactions, wrap them, then build additional programs to either Java or COM APIs."

Also new to EnterpriseLink with Component Generator, according to Witkin, are the ability to allow developers to map proprietary and industry-standard XML Document Type Definitions to corresponding fields in CICS applications, and a test client for the created components.

The EnterpriseLink with Component Generator developer kit, which includes five developer seats, costs $25,000. Additionally, up to 50 users costs $20,000, while more than 1,000 users costs $280,000. Micro Focus (www.microfocus.com) is selling a five-developer-seat kit plus deployment for 200 concurrent users for $85,000. ■



Aonix's ObjectAda Raven conforms to the hard real-time and safety critical Ravenscar Profile. Raven is a full Safety Critical development environment, available with a safety critical certification package to satisfy the requirements of the commercial avionics DO-178B standard Level A. Mappings to other safety critical standards are also supported, such as high-speed rail, nuclear shutdown systems, etc.

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Embedded Linux Group Progresses on Standards

At LinuxWorld, focus is on increasing target support, handheld platforms

BY EDWARD J. CORREIA

NEW YORK — The **Embedded Linux Consortium** will announce next month it has made significant progress in its effort to standardize embedded Linux, SD Times learned at the LinuxWorld Conference and Expo late last month.

According to a source close to the ELC who spoke on condition of anonymity, the group has reached an agreement on intellectual property rights, one of the main stumbling blocks to moving the effort forward after it was initially proposed in April of last year. With an agreement on IP in place, the source said the ELC (www.embedded-linux.org) board now is ready to begin assigning some of the actual work on standards to its members. "The ELC has formed an initial working group to steer the effort of forming technical committees," the source said. The efforts will begin at the Embedded Systems Conference in San Francisco in mid-March.

According to earlier statements issued by the ELC, the standards would be designed to enable developers to rely on a minimum set of capabilities and APIs in any embedded Linux-compliant device, including those for real-time capabilities and file services, and would thwart the need to create separate versions of applications for each Linux distribution.

Also at the show, **MontaVista Software Inc.** (www.mvista.com) demonstrated MontaVista Linux, the newest version of the distribution formerly known as Hard Hat Linux. The new version 2.1 works with 18 additional boards. Presenting a renewed message that increasing target support means adding new boards, and not just processors, company president and CEO Jim Ready said that MontaVista's competitors have been unable to keep up the pace. "Companies like Lineo and LynuxWorks are casualties of the [growing] availability of boards," he said. MontaVista Linux now supports 60 boards across 20 processor platforms, a diversity that Ready said companies like Wind River Systems Inc. have used to their advantage.

Lineo and LynuxWorks haven't kept up the pace, says MontaVista's Ready.

There was plenty of buzz around Zaurus as developers flocked to see the new Linux-based handheld computer developed by **Sharp Electronics Corp.** The company (http://developer.sharpsec.com) has released the $550 device to developers at a reduced price of $400 and is throwing in an extra 32MB compact flash card. The company also has outlined its developer program, which includes free developer tools, training and help with enterprise application integration.

According to Jason Perlow, Sharp's developer program liaison, one of the main lures of Zaurus is its compatibility with existing Linux apps. "Anything that can run on Linux can run on Zaurus," he claimed, adding that if JDBC connectivity is needed, it's available through the built-in Jeode JVM. As for footprint restrictions, Perlow said that if an application that exceeds the 32MB RAM allotment is required, "developers can reconfigure the kernel and the way memory is divided among the file system and the memory heap. Right now it's 50-50."

Meanwhile, **Red Hat Inc.** (www.redhat.com) also had target-related news. The company has added support for Compaq's iPAQ handheld computer to its list of supported targets in its Embedded Linux Developer Suite, which combines kernel and GUI configuration tools with the gcc3 open-source compiler and C Linux libraries. ▮

AIRCLIC PUTS ENTERPRISE APPS BEHIND BAR CODES

Integration platform connects data with scanner, keypad, voice inputs

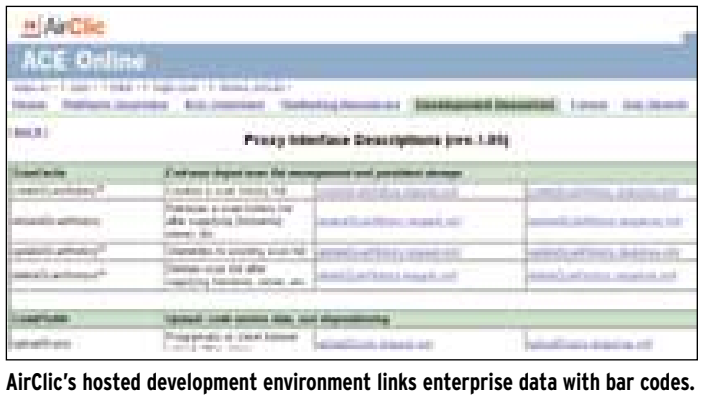
BY EDWARD J. CORREIA

Mobile tools developer AirClic Inc. has released its Mobile Information Platform, a suite the company claims lets developers create mobile versions of enterprise applications by linking them with standard bar codes.

The tools let you mobilize apps very quickly, says AirClic's Ritz.

According to Peter Ritz, CTO and founder of AirClic (www.airclic.com), the company's technology enables developers to deploy applications globally by creating connections between data and standard or proprietary bar codes. "The key benefits are that you can mobilize your application very quickly by using existing numbers or by obtaining and automating them using bar codes."

The easiest way to begin using the tools, Ritz said, is with an organization's existing codes. "If you have an application that uses numbers, [MIP] could work with no modifications whatsoever," similar to the way bar codes are used today to store inventory information. For example, Ritz described a material billing application in use by a construction contractor that involves scanning items at a job site or from a supply catalog. "They can either order items in real time or have them picked up for later delivery," he said, adding that this application was developed in roughly two weeks. If a bar-code scanner is unavailable, codes can be entered on any phone keypad or spoken, Ritz said, with data returned to the device in kind.



AirClic's hosted development environment links enterprise data with bar codes.

The company's developer program (www.ace.airclic.com) provides access to tools and permits application prototypes to be created and hosted free of charge. Self-hosting on a Windows server also is available. Commercial deployment fees vary depending on the volume of users and bar codes deployed. ▮

ESC Emphasizes Communications, Wireless, Real-Time Techniques

BY EDWARD J. CORREIA

Despite an economic downturn that has hit the technology sector particularly hard, organizers of this year's Embedded Systems Conference expect to attract roughly 14,000 attendees to the show, which begins March 12 at the Moscone Convention Center in San Francisco. Attendance at last year's show was about 15,000.

Organizers said ESC will host about 350 exhibitors and 205 classes. One hundred of the classes are new this year, including six devoted to the fundamentals of embedded development and real-time techniques. There are also beginners' courses on Bluetooth, executing from ROM, Universal Plug and Play, USB and a comparative study designed to help developers select the right RTOS. In all, close to 90 classes are offered at an introductory level.

The event, produced by CMP Media LLC, wouldn't be complete without at least one off-center keynote. This year, it's titled "From Simplicity to Complexity," and will be delivered by Physics Nobel Laureate Murray Gell-Mann, who will discuss how complexity arises in a universe that is believed to be governed by rather simple laws.

The second keynote, titled "Rethinking the Design of Communications Systems," will be given by Henry Samueli, CTO of Broadcom Corp., a company that specializes in the design and manufacture of systems-on-chips for all manner of broadband communications applications. The lecture will explain how integrated embedded processors can be used to build a flexible and scalable communications infrastructure for facilitating widespread adoption of broadband services. ▮

EmbeddedSystems Conference San Francisco

CONFERENCE: March 12–16, Moscone Convention Center, San Francisco

TUTORIALS:
Tuesday, 9 a.m.–5 p.m.
Wednesday, 8:30 a.m–6 p.m.

CLASSES:
Wednesday, 8:30 a.m.–4:30 p.m.
Thursday, 8:30 a.m.–4:30 p.m.
Friday, 8:30 a.m.–4:30 p.m.
Saturday, 8:30 a.m.–4:30 p.m.

EXHIBITOR WORKSHOPS:
Wednesday, Thursday, Friday, 9:30 a.m.–5:30 p.m.

EXHIBIT HOURS:
Wednesday, 3 p.m.–8 p.m.
Thursday, 11 a.m.–7 p.m.
Friday, 10 a.m.–3 p.m.

KEYNOTES:
Wednesday, 1:30 p.m.–2:30 p.m., "From Simplicity to Complexity"
Thursday, 10 a.m.–11 a.m., "Rethinking the Design of Communications Systems"

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TEXAS INSTRUMENTS

Software Development Times February 15, 2002 www.sdtimes.com

Embedded Systems: Beyond the

Open-source embedded operating systems can be a viable alternative to proprietary systems... but only under the right circumstances

BY STEVEN J. VAUGHAN-NICHOLS

Before 1999, a development team's embedded operating system choices were pretty limited. Most companies simply "rolled their own." If they were looking for a packaged solution, they looked at the market leaders, QNX Software Systems Ltd. and Wind River Systems Inc., or considered others for particular situations in which these companies' operating systems weren't up to the task.

Then, along came Linux. Suddenly, not only were there many more operating systems and companies from which to choose, there were also two fundamentally different development and business models. According to Rick Lehrbaum, founder and executive editor of embedded Linux portal LinuxDevices.com, "Embedded Linux has rewritten the rule book for the embedded software market. There are now several major players who didn't exist just two-and-a-half years ago, and who are right in there competing with the long-term players. Perhaps the biggest change is that now there are multiple vendors who are selling compatible products, something that never existed in the embedded software market before—not only that, but [they are] based on open source. If that isn't a major disruption to the embedded software market, I don't know what would be." And, it's not just disruptive; it's becoming big business.

You don't have to take his word for it. Stephen Balacco, Venture Development Corp.'s senior analyst specializing in embedded systems, in his white paper titled "Linux's Future in the Embedded Systems Market," wrote that in 2000, "worldwide shipments of embedded Linux OSes, software development tools, and related services reached an estimated $28.2 million. By 2005, VDC estimates that shipments will reach $306.6 million, a compound annual growth rate of 61.2%."

Other analysts paint an even rosier picture for embedded Linux. Tom Williams, Evans Data Corp.'s embedded systems analyst and an author of Evans' June 2001 Embedded Systems Developer Survey, said, "Embedded Linux has captured the attention of the development community like few other phenomena." The Evans survey of 500-plus embedded systems developers also predicts a threefold increase from 2001 to 2002 of embedded Linux-based projects.

Other analysts aren't so optimistic. Meta Group Inc. doesn't see Linux as having much of a future in handheld computers. That's because with both Microsoft Corp. offering Pocket PC and Palm Inc. offering Palm OS at royalty prices of $7 to $10 per unit, these low prices offset Linux's lower license costs. In addition, Meta claims that the often-cited problem of Linux—not enough applications—will keep Linux from play-

LACK OF SUPPORT A PROBLEM

One of the big drawbacks of using open-source embedded operating systems, such as RTLinux, RTAI, ThinLinux and uClinux, is that they offer no commercial support at all.

Robert Monkman, director of marketing at OSE Systems Inc., which sells a proprietary embedded operating system, said, "The biggest problem with free software from a noncommercial source is that there is rarely any support channel. Who do you call with questions or issues? You are completely on your own to deal with the problems that will arise. The software will have to be modified, and the more software you have in source to verify and customize, the higher the cost of those activities."

Dan Kusnetzky, vice president for system software research at IDC, said the single biggest difference between most of the open embedded systems and the proprietary ones is support. "For open-source companies, this poses a real dilemma because most don't have large support organizations for developers. Developers put millions into embedded development, and these people want companies that can deliver high-level support when they need it as soon as possible." He goes on to say that embedded developers need regression testing, documentation and solid support for multiple processors and their variations; with open source they may not get this." Still, he thinks that open-source companies can deliver the support goods. He added, "That's one reason why MontaVista [Software Inc.] is doing so well."

Exactly how much support does embedded development require? "The issue of support extends far beyond timely responses to programmer questions," explained QNX Software Systems Ltd. technology analyst Paul Leroux. "Embedded systems are, by nature, incredibly diverse. Most are purpose-specific, requiring custom applications, custom drivers, custom OS services, custom board designs and so on. And, unlike desktop and server systems, embedded applications also use a wide variety of processors. So, if you've got a problem, you can't always rely on a community of developers to help you—nobody else may even have the hardware to test-run your code, let alone help debug it," he said.

"Put simply, virtually anyone building an embedded product has unique requirements," Leroux continued. "And that's where an OS vendor with lots of embedded experience can help. Most companies that build embedded systems need an OS vendor that will work hand-in-hand with them to develop product—a vendor that can provide everything from system design to custom drivers for the customer's one-of-a-kind hardware. An OS vendor that, in effect, works as a partner on the embedded project."

There's no reason why open-source companies can't provide comprehensive programmer support, but it does require support infrastructures beyond the reach of small companies. Simply keeping an operating system current with multiple chips with life cycles that can go from 12 to 24 months is a challenge beyond many businesses.

–Steven J. Vaughan-Nichols

Politics

ing an important role in handhelds.

Still, as Dan Kusnetzky, vice president for system software research at IDC, said, "both forms of embedded operating environments will continue in the future."

Which path is right for you and your developers? As always, while programmers can fight over the essential rightness of open-source development versus proprietary approaches, the best answer depends on your team's skills and the job at hand.

"Embedded systems are a very diverse market ranging from ABS [anti-lock braking systems] to GUI-based PDA and digital phones to cardiac monitoring systems," Kusnetzky said. Only zealots would argue that a single embedded operating system will fit all needs.

Both forms will continue into the future, says IDC's Kusnetzky.

OPEN-SOURCE ADVANTAGES

LinuxDevices.com's Lehrbaum thinks that one of the chief advantages of an open-source approach is that "developers can read the source code to understand the components that they are interacting with, debug their application, and make changes when necessary to fix a bug or add a feature."

Skip McGaughey, IBM Corp.'s director of embedded software, said, "Open source based upon clear specifications can deliver code that is easier to understand. By directly inspecting the source, developers can examine, line by line, how the code works."

But is that always a good thing? Robert Monkman, director of product marketing at proprietary operating system vendor OSE Systems Inc. (www.ose.com), doesn't think so. He said, "The real advantage to proprietary source code stems from this inherent need in embedded to have quick response to questions about the code and to bug-fix requests. The designers of products based on embedded software have time-to-market and, in some cases, 24/7 support responsibilities to their customers. Commercial software vendors cannot simply throw source-code files over the wall to the customer to solve this problem. Access to the source is needed sometimes to allow developers to have control in tight situations, but the less they have to do themselves in terms of design, modification and test, the better it is for them."

Monkman hit upon a key issue. Do your people have the time, talent, inclination and need to get their hands dirty improving the operating system, and thus eventually improving your deliverable product? Do they even want to get that involved in learning its internals?

Even open-source advocates don't think that having source-code access alone makes open source a winning approach. Embedded Linux supporter C. Douglass Locke, vice president of technology at TimeSys Corp. (www.timesys.com), observed, "The stability of Linux, because of the open, public way it is developed and maintained, is unsurpassed by any proprietary operating system, especially embedded OSes."

Free code probably is not well designed or verified, argues OSE's Monkman.

IBM's McGaughey agreed. "Open-source consortiums also can produce a higher quality of code. When code review is collaborative, people put extra effort into it. The source that they contribute becomes a reflection of the work that they do, establishing both individual and corporate reputation," he said.

In addition, McGaughey said, peer review helps improve software quality, and added, "open source can be easier to debug. Late at night, when encountering a bug, source code can speed identification of the root cause. It could be your fault or the fault of the platform and environment. With access to the source, guesswork is eliminated. With access to a collaborative discussion forum, it's even possible to compare notes with someone else familiar with the environment or problem. If the problem appears to be in shared open source, it's easy to patch it and attempt a work-around."

Monkman disagreed. "Any software manager knows that most of the work in producing quality software is in the design and the integration/test phase. Actual code writing is the smallest cost. Any free code pulled off the contributed sites is probably not well designed and not well verified. It is, at best, a good idea that seems to work on a Linux PC, but did they really take the time to think it through for impact analysis and test it in a wide range of conditions? You are back to doing most of the work yourself anyways. It might simply end up being a good start, or it might be completely worthless to you."

One undeniable advantage of open-source development, as Lehrbaum said, is that "developers aren't held hostage to a single OS vendor." With an open-source approach, he added, you need have "no fear of a vendor going out of business or dropping a product and not being there to support you." With open source, you have the insurance policy of being able to support yourself with the open-source community.

Another important point in open source's favor is that it doesn't lock you into proprietary APIs. But the open-source operating systems aren't the only ones supporting open API standards. Indeed, QNX (www.qnx.com) technology analyst Paul Leroux said that "open-source OSes like Linux are helping QNX gain greater acceptance than ever because of their support for POSIX APIs that QNX embraced over a decade ago."

OPEN-SOURCE DISADVANTAGES

Even open-source supporters admit that Linux can't do it all. Lehrbaum said, "If you really do need to modify the OS for your embedded application, but you must keep those modifications secret, then you are better off using proprietary. That said, if you write your application modularly and you don't modify the GPL components themselves, you can still include proprietary code components in most cases."

This isn't just theory. "TimeSys extends the newly achieved true real-time capabilities of TimeSys Linux by providing both open-source extensions to the Linux kernel plus providing a few proprietary Loadable Kernel Modules that provide guaranteed reservations of CPU and network interfaces,"

▸ continued on page 20

WHAT LINUX EMBEDDED DEVELOPERS ARE USING

Which of these have you already used in embedded applications?

Red Hat	18.1%
Debian	11.9%
uCLinux	6.2%
Embedix (Lineo)	5.1%
Hard Hat Linux (MontaVista)	5.1%
Mandrake	4.6%
Slackware	4.1%
BlueCat Linux (LynuxWorks)	3.6%
SuSE	3.6%
Tynux (PalmPalm)	3.6%
Caldera	3.1%
ETLinux	3.1%
Home-grown (Built from GNU/Linux downloaded sources)	2.5%
RTAI add-on (DIAPM)	2.5%
RTLinux add-on (NMT/FSMLabs)	2.0%
LinuxPPC	1.5%
Linux/RT (TimeSys)	1.0%
Yellow Dog Linux	1.0%
EL/IX API	0.5%
RedICE Linux (RedSonic)	0.5%
TASTE (Tuxia)	0.0%

Clearly, with full-sized Linux such as Red Hat and Debian leading the way, most Linux embedded work is in network and server appliances.

Source: LinuxDevices.com

EMBEDDED SYSTEMS

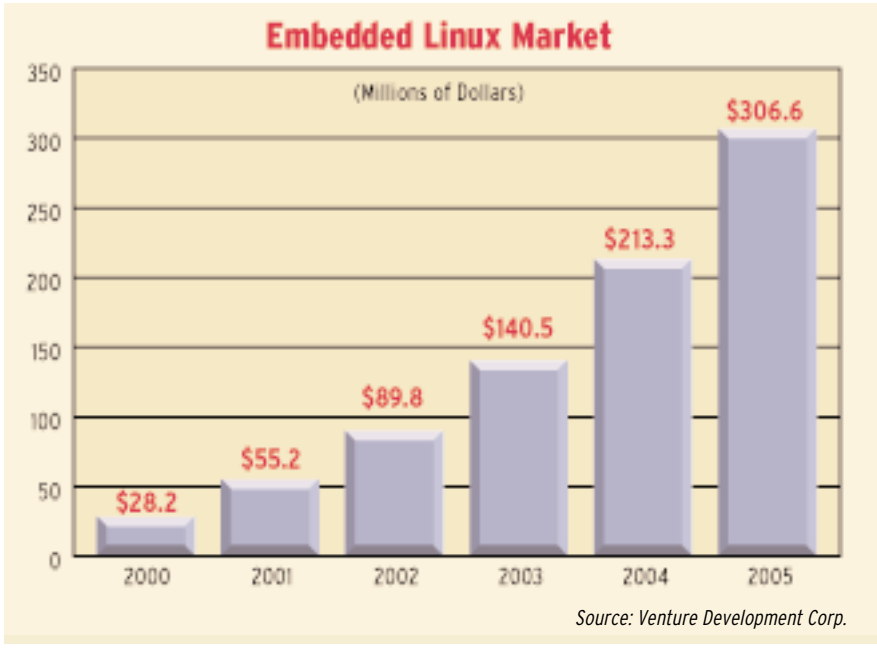
◂ continued from page 19

Locke explained. "Thus, for example, a critical set of threads can be guaranteed to get, for example, 5 milliseconds out of every 33 milliseconds to ensure that they will complete their work, regardless of the system load. Or, a resource hog such as X-Windows can be given a reservation that not only guarantees a minimum amount of CPU to run, but also limits it so that other time-critical threads can be guaranteed sufficient resources to meet their time constraints."

Besides TimeSys, Real Time Application Interface (RTAI), developed under the leadership of programmers at the Dipartimento di Ingegneria Aerospaziale Politecnico di Milano (DIAPM), and RTLinux from FSMLabs Inc. also attempt to retrofit Linux into being a real-time operating system (RTOS). Still as Lehrbaum admitted, "'Standard' Linux isn't an RTOS, but there are enhancements and extensions that make it quite suitable for many real-time apps. However, in certain applications, a traditional RTOS may make more sense."

Leroux simply stated, "QNX has a clear advantage over other [open-source] OSes, both in terms of reliability and real-time performance." With more than a decade of dedicated RTOS behind OSE's Real-time Kernel, QNX's Neutrino and Wind River's VxWorks, it's hard for Linux fans to argue that an operating system that was never meant to be real time is the equal to dedicated RTOSes.

Another problem with most open-source embedded operating systems, Lehrbaum pointed out, is that they're simply too big to fit into the constrained spaces required by many embedded applications. "Linux has been demonstrated to be scalable to very small systems [by modern standards] of perhaps 2MB of Flash and 4MB of RAM," he said. Locke agreed, saying, "The chief downside of Linux in the embedded space is its size and latency."



The market for embedded Linux is expected to grow dramatically over the next few years.

However, Lehrbaum acknowledged that "Linux isn't being used in highly resource-critical applications, such as cell phones and embedded microcontroller level devices, which can't afford even the 2MB/4MB memory needs of Linux." QNX's Leroux added, "Because of the fine-grained scalability of its microkernel architecture, the QNX RTOS can provide a runtime environment considerably smaller than Windows or Linux OSes—a critical advantage in high-volume devices such as dashboard computers, where even a $2 reduction in memory costs per unit can return millions of dollars in profits." All of this is also true of the other mature embedded systems like VxWorks.

If you're bound and determined to use open-source operating systems on smaller devices, pure Linux isn't your only choice. uCLinux (www.uclinux.org) is a microcontroller Linux that works in systems based on processors that don't have a memory management unit such as the Palm Pilot's MC68328 DragonBall processor. Red Hat Inc. also supports the eCos (www.redhat.com/embedded/technologies/ecos) operating system. eCos is open source and looks like Linux, but can run in environments with as little as 100KB of memory.

BEYOND THE TECHNOLOGY

Technology alone, however, is only part of what goes into deciding on an operating system. Cost is an important element as well.

Open-source advocates offer what appears to be an impressive set of arguments, including, Lehrbaum noted, "no royalties, except for when you choose to use proprietary/licensed components, but there are almost always 'free' alternatives; no charge for source-code access/use; the tools and support often do come for a fee, but because of competition they are less costly than those of proprietary vendors; and you can generally find free tools and use in-house or contract engineering to provide your own support, under your own control."

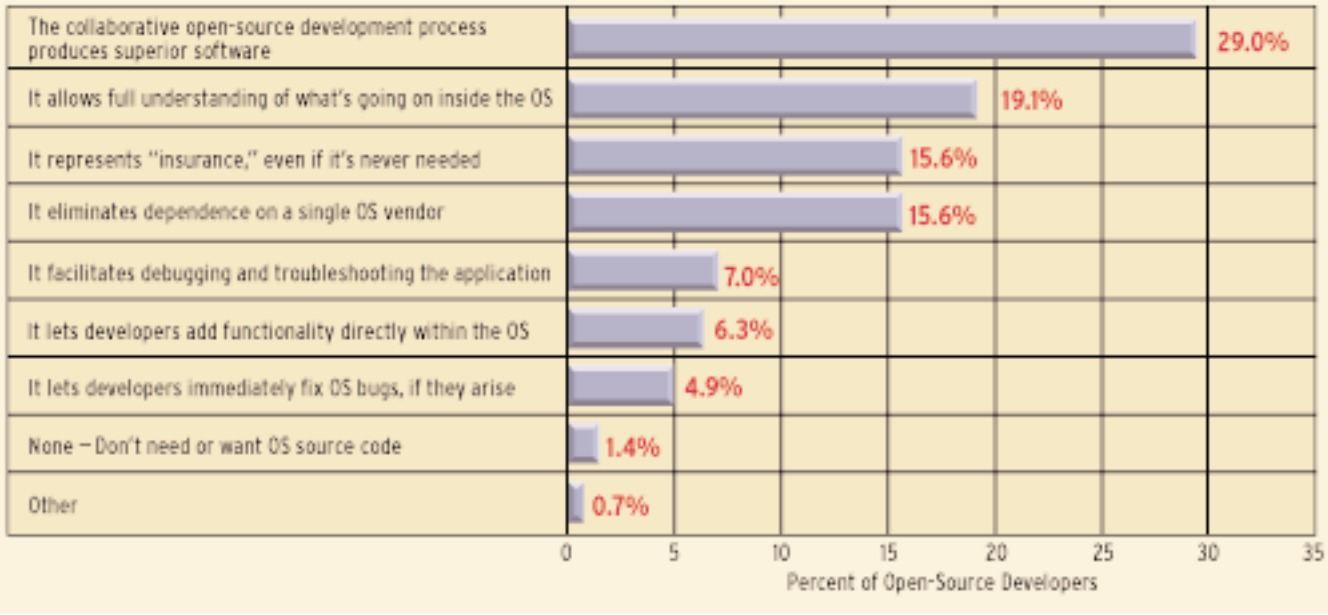
Monkman, though, doesn't buy any of this. "There really is no free software when it comes to using it to build commercial systems. Any reasonable organization is going to have quality processes in place to do code reviews, testing and integration work. One of the hardest things to do in software development is to validate someone else's code. It has to be thoroughly examined and understood to be trusted." To Monkman, "having source code brings with it the burden and cost of ownership."

Another argument that open-source supporters have is that for every proprietary operating system programmer, there are 20 that can handle Linux. There's some truth to that, but simply knowing POSIX and Linux doesn't mean that someone who can deliver programs for a Pentium with access to dozens of megabytes of RAM and disk space can handle the tiny storage requirements of embedded systems or the complexities of real-time development. Embedded developers are a special breed.

All this said, in which direction should development managers take their teams? For some projects, embedded open-source systems make sense. For example, even Pentium-class Linux systems such as those from Caldera Systems Inc. or SuSE Inc. can be used in such embedded devices as network appliances. After all, Wind River, although it has recently rid itself of FreeBSD, has kept the commercial server class BSD/OS in its operating system family.

If the company already supports open source, or you want to and your embedded systems have sufficient system requirements, you should give embedded open systems from the major companies like Lineo Inc., MontaVista Software Inc., Red Hat and TimeSys serious thought. But considering the support requirements, it's hard to justify an investment in embedded operating systems with little or no commercial support.

For most developers, though, the commercial proprietary systems probably remain the best choice. As Monkman says, "Open source is not the Holy Grail; vendors teaming up with their customers to leverage each other's strengths and improve the overall software development process is." ▮



The ability to produce superior software in a collaborative environment was the top reason cited for using open-source operating systems when building embedded systems, according to a poll of 141 open-source developers taken by embedded Linux portal LinuxDevices.com.

Full understanding of the workings of the operating system was the second most important reason given, while eliminating vendor dependence and the "insurance" of having the source code were equally important to those surveyed.

Source: LinuxDevices.com

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EDITORIAL

All's Quiet in Linux World

Remember when everyone was talking about Linux, and the LinuxWorld conference and exhibition was at the heart of the movement? This year's show was smaller, quieter, and other than some buzz around the open-source Eclipse project, lacked any sort of show-stopper revelation geared to catapult Linux back to the forefront.

It's important not to read too much into that. Linux adoption shows no sign of abating. Recently, tools companies like Borland and IBM have been touting their forthcoming full-featured C/C++ IDEs for the open-source operating system. Customers are buying, installing and using Linux every day, and in any way.

Yet the buzz is definitely gone, but that's not purely Linux's fault. Blame it on the fact that it's no longer "the new new thing," having been supplanted by J2EE, XML, .NET and then Web services.

Another factor is that the dot-com bubble burst humbled many of Linux's formerly high-flying stocks, sending some companies out of business, and driving some to drastically change their business models. The brutal collapse of share prices at companies like Red Hat and VA Linux (now called VA Software), while lacking the political overtones and cries of corporate malfeasance that are marking the current Enron travails, ultimately cost Linux its fawning coverage in the general business media.

Linux enthusiasts still hope that their operating system will supplant Microsoft's Windows on the desktop. That seems unlikely, especially in the consumer space. Home and business desktop PCs, except at the very largest companies that buy systems by the palette-full, still come preloaded with Windows. Essential business applications for the *x*86 desktop, like Microsoft's Office, remain Windows-only. Except for the most technical audience, the *x*86 desktop remains a bastion of Windows.

But that doesn't mean that Linux's heyday is over. Far from it. On the server, Linux enjoys a breadth of support unparalleled by any prior operating system. From *x*86 to Itanium, from mainframe to Macintosh to SPARC, Linux is there—and not only there, but supported (to a greater or lesser extent) by most of the hardware manufacturers themselves. Equally important, Linux enjoys favor by many of the major enterprise systems vendors. Application servers, databases, Web servers, middleware, even the major packaged applications, all are available for Linux.

Linux similarly has found a welcome home in the embedded space, where its low memory profile, wide platform support, available source code (with the developers often readily available on newsgroups or via e-mail) and free deployment price have caused it to vault into widespread popularity. In a relatively short time frame, Linux has emerged as a viable competitor to even the best-established proprietary embedded operating systems, both on mobile computers and traditional embedded devices.

So the Linux world is quiet, but that doesn't mean it's moribund. Rather, think of the decade-old operating system as having reached a level of maturity that doesn't require hyperbole and frenzied start-up posturing. There may not be too many Linux billionaires left, but there are plenty of Linux developers and customers who—quite literally—call the operating system their own. ▮

GUEST VIEW

WHAT TO EXPECT FROM UML 2.0

In the more than four years since the Object Management Group (OMG) adopted the Unified Modeling Language (UML) in 1997, it has established itself as the de facto standard for modeling software systems. During this time UML has been successfully applied to specify software solutions in a wide variety of domains, ranging from health-care and financial services to telecom and aerospace. Indeed, it is becoming difficult to find a software project with more than a dozen developers who don't use UML in some way to specify part of their software architecture.

While the UML has been growing in popularity among software developers, the first version of the language has also been showing signs of stress and age. A list of some of the problems commonly cited regarding UML 1.*x* includes excessive size, gratuitous complexity, imprecise semantics, limited customizability, nonstandard implementations and the inability to interchange model diagrams.

It's not surprising that UML also shows the effects of age. During the past decade, the object-oriented paradigm has evolved into the component-based paradigm, as evidenced by the success of J2EE's Enterprise JavaBeans and .NET's COM+ objects. Although UML 1.*x* has been patched to improve its support for modeling components, an overhaul is needed to fully address the needs of enterprise component-based development.

Fortunately, a major revision process for UML 2.0 is already in progress at OMG and is now in its third and final phase. In the first phase, OMG issued four UML 2.0 Requests for Proposals (RFPs) during 2000. In the second phase, submission teams responded with initial proposals for the RFPs during 2001. During this year, the submission teams are scheduled to combine and finalize their proposals for the UML 2.0 specification.

ABUNDANT OPPORTUNITIES

The UML 2.0 major revision represents an excellent opportunity to resolve the major issues associated with UML 1.*x* that were described above. Starting at the beginning of our list, it has long been recognized that UML 1.*x* is too large and complex, making it unwieldy to learn, apply and implement. We can learn much from how the Java and HTML/XML designers streamlined C++ and SGML, respectively. We can also benefit from studying how the agile methodologists (e.g., Extreme Programming methods experts) have simplified heavyweight methods, such as the Unified Process. Perhaps the best place to start is by defining a concise and precise language kernel, defined as the 20 percent of the language needed to specify 80 percent of the common software solutions.

CRIS KOBRYN

Defining a precise and concise language kernel will make UML easier to apply and implement. The kernel can be used in conjunction with a mature profile mechanism (which includes metaclasses) to define the more advanced language features, such as the 80 percent of UML 1.*x* that is used only 20 percent of the time. This approach will also facilitate language customization by users and vendors, so that UML can be efficiently tailored for different domains (e.g., health, telecom) and platforms (J2EE, .NET).

A concise and precise kernel will also likely accelerate the compliance of UML implementations with the specification—something that is long overdue. Consider that four years after the adoption of UML by OMG, no modeling tool vendor has yet fully implemented any UML 1.*x* language specification! Compliance will need to include complete support for model interchange and diagram notations as well as semantics. Until this is accomplished, it will be impractical to effectively share models among competing modeling tools.

It is also important that UML 2.0 makes the component concept a core construct that evolves throughout the software life cycle, rather than an afterthought for the implementation phase, as it sometimes appears in UML 1.*x*. Although the recent revisions to UML 1.4 make it easier to distinguish between physical components (e.g., Enterprise JavaBeans, COM+ objects) and the artifacts that are associated with them (e.g., EJB JAR files, DLLs), much work remains to be done before UML 2.0 can fully support mainstream component architectures and methods.

AVOIDING TRAPS

Since we understand most of the problems described above reasonably well, one might think that it should be relatively straightforward to solve them with the UML 2.0 revision. However, we will likely need to contend with the "second-system syndrome" first described by Frederick Brooks Jr. in "The Mythical Man-Month." The pathology is that, when designing the successor to a relatively small, elegant and successful system, there is a tendency for scope creep to make it into a feature-laden monstrosity.

One might argue that second-system syndrome doesn't apply to UML 2.0, since UML 1.*x* was neither small nor elegant, and that UML 1.*x* already suffered from the syndrome during its initial unification process so it is now immune. I expect that the syndrome will still be a serious problem for two reasons. First, the requirements for the four separate RFPs are so extensive and ambiguous that it will be difficult to prevent scope creep. Second, the record number of companies that are submitting to these RFPs will likely make UML 2.0 vulnerable to design-by-committee compromises.

In facing these challenges, I hope that the UML designers learn from the experiences of others as well as their own. Besides Brooks, they should consider the experiences of the designers of both elegant and baroque languages.

What should developers expect from the final submissions for UML 2.0? They should expect expert design practices to prevail, and a more agile and more extensible UML to result. If the UML 2.0 designers fall short of this, developers should start searching for a new modeling language and expect natural selection to take its course. ▮

Cris Kobryn is the chief technologist at Telelogic AB and co-chair of both the UML Revision Task Force and the Analysis and Design Task Force at OMG.

LETTERS TO THE EDITOR

MICROSOFT ECLIPSING JAVA

Your article "Sun Slams IBM for Eclipse," [Jan. 1, page 1, or online at www.sdtimes.com/news/045/story2.htm] shows us unfortunately that Microsoft will be the winner of this confrontation between Sun and IBM.

I can nevertheless understand IBM's project initiative. I think that Sun has no real experience in developing programming tools. It is not the case with IBM, Borland, TogetherSoft and Rational, which support the Eclipse project.

We can find in Eclipse many of the good ideas of Smalltalk. There are things lacking up to now, too—a lot of bugs, the lack of wizards, the compiler errors.

A very good thing in Eclipse is speed of execution; it is smooth and quick, which is not the case of NetBeans, and in fact not actually the case of Java.

It is urgent to develop something different from Swing; C# and .NET won't be slow and will be accompanied by a lot of efficient, graphical components.

I think that Sun (or the community) must accelerate the development of Java and include all the good ideas found in open-source projects like PHP, Python or Perl. For instance, String handling must be improved drastically. There are less useful APIs in the Java String class than in the 20-year-old Smalltalk class! The same thing for Java List classes versus Smalltalk Collection classes. It is not acceptable to regress, so I hope that Java will survive in the future.

Xavier Méhaut

NOTHING BUT HYPE

As a Microsoft developer turned Java developer turned open-source lover (read: PHP), I must appreciate your bold article ["Has J2EE Hit a Fork in the Road?" Jan. 1, page 1, or online at www.sdtimes.com/news/045/story1.htm]. It's high time people opened up to realities, and face up-front that the hype about Java was/is nothing but that...hype! I hope people stop inane Microsoft bashing now.

If Microsoft products sell, it's due to the fact that the stuff is good (apart from clever and persistent marketing). It's pretty well known (though never explicitly acknowledged) that development time on a Java platform takes more time and causes more stomach ulcers and gray hairs than development on a Microsoft platform.

Sun prevented Microsoft from developing Visual J++, stating the very "proprietary" word (it was then a bad word, you see). The "Sun" is setting and a new day is beginning. Let's hope that from here on, companies compete only on the basis of their technical capabilities without the use of lawsuits and smear campaigns.

Sabarish T Muthumperumal

Finally, some truth in the marketing strategy called Java. Well done.

Ermine Todd III

REAL-TIME NOT REQUIRED

Mr. Vaughan-Nichols says that J2ME doesn't count as an embedded system because it's not real-time ["Is Micro Java Too Small?" Jan. 1, page 27, or online at www.sdtimes.com/cols/javawatch_045.htm]. He can define things however he wishes, but creating personalized definitions for widely used terms does not serve his readers well. To the rest of the world, "embedded" and "real-time" are orthogonal concepts. There are plenty of embedded, non-real-time systems (my calculator) as well as real-time, non-embedded (a lot of factory automation control stations, for instance) systems. J2ME can indeed be an embedded system, as can J2EE. It all depends on how they are used, not on whether they are real-time.

I understand that most Java users are concerned neither with embedded nor real-time issues, but if Mr. Vaughan-Nichols is going to discuss such issues, then he needs to first learn more about them. The comp.realtime and comp.arch.embedded Usenet groups are two relevant resources.

Tom Ziomek

BIG BENEFITS TO ASPECTJ

From reading his article ["Ghost From the Past," Jan. 1, page 22, or online at www.sdtimes.com/opinions/guestview_045.htm], Mr. Kolawa does not appear to have invested enough time to learn what AspectJ actually does, or to understand the benefits that it provides. I recently had the opportunity to participate in a daylong workshop at Xerox PARC that was put on by the five-man team behind AspectJ, and I now have a tremendous respect for the product and the people behind it. I believe that it will take me a considerable period of time to become proficient with the subtleties of aspect-oriented programming. I believe the investment will pay off many times over, and I intend to benefit from using pluggable AspectJ modules right away.

Not once in any of the AspectJ material that I have absorbed have I seen any reference to parallel programming, but Mr. Kolawa seems to imply that AspectJ is somehow oriented to parallel programming environments. During the workshop, we did learn that some of the "low-hanging fruit" for aspect-oriented programming is provided when testing code, as suggested by Mr. Kolawa. Using AspectJ for performance tuning of existing Java code was not discussed. I was astonished at the power of short (10-line) AspectJ modules that, when simply added to already complete programs, were able to change a program's behavior such that all method calls would automatically be logged, or interactions with the program's environment could be fundamentally altered. Contrary to Mr. Kolawa's assertions, AspectJ modules tend to be small and quick to write. It's remarkable how much power is provided by a few easily understood lines of AspectJ code. An aspect's impact can range from a highly localized effect to a global feature.

A book about AspectJ is sorely needed, and the AspectJ team has stated that they are committed to getting one produced "real soon now." I would encourage people to watch this promising new technology and to use small, pluggable AspectJ modules in their existing code. It's not a ghost from the past—it's a vision of the future!

Mike Slinn

APPLE'S INROADS

Your article ["Apple Supplies 'How,' Lacks 'Why,'" Jan. 15, page 1, or online at www.sdtimes.com/news/046/story3.htm] was very good in assessing Apple's new OS and the developer community. As a long-term Mac user, I believe that the first inroad will be made through new server products utilizing the G5 processor and symmetrical multiprocessing. There are rumors of clustering via the "gigawire" technology trademarked by Apple. I believe that Apple's G5 architecture may provide the potential to ramp up server sales if Apple desires to invade the low/medium market. If these machines are standout performers using OS X, Apple may make inroads in the IT departments burdened by budgetary limits deploying XP. Next year I think there will be an opportunity to port a server-only OS X to Intel iron, particularly if the Apple servers are successful.

Thanks for the good work.

Robert Boylin
Architect

If Apple is ever to meet the needs of its market, it must immediately start offering weekends with Nicole Kidman with each new machine sold. Otherwise, it is liable to just loll around in its extreme desirability, luxury image and profitability.

Michael Hahn

Regarding the comment from IDC's Al Gillen that for Apple to create a truly compelling platform, it needs to find a way to attract Windows developers, this may happen in a way he has not considered.

In its most recent financials, Apple reported a profit of some $38 million—a decent showing in today's economic climate where much of the Wintel marketplace, other than perhaps Dell, is having problems. In addition, 40 percent of the buyers of hardware at the Apple "brick-and-mortar" stores are not Macintosh owners.

What this means is that many folks who previously had nothing or some other platform are buying Macs. When they do, they will be looking for software products, and that demand, if heard by the developers, should result in developers porting or writing software products for Macs. I think to some point we've seen this start to happen; since the arrival of Mac OS X, we've seen a few products arrive for Macintosh that heretofore were not there. That pace may accelerate as Mac OS X matures.

Jim Polaski

MOST VALUABLE ASSET

In your article "Sybase Looks Past Database Into New Era," [Jan. 15, page 1, or online at

▸ continued on page 25

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TIBCO SWALLOWS TALARIAN

In early January, TIBCO Software Inc., the market leader in high-performance messaging systems, announced it had purchased its only serious rival in the market, Talarian Corp. This move makes a lot of sense both strategically and tactically for TIBCO.

Talarian had three assets that made it attractive: very good technology, a marquee client list and a price in the subbasement.

Both companies tout their high-performance, publish/subscribe messaging system. Both can deliver messages within real-time constraints with complete reliability. However, Talarian's implementation has one distinct advantage: It performs publish/subscribe activities on the server. This means that a message will be sent from the server to a client only if the client has subscribed for messages of that kind. TIBCO, by comparison, sends all messages to all clients and requires the client to peel from the message stream the messages it wants.

The TIBCO approach was chosen, I understand, to allow TIBCO engineers to work on one performance issue: how to blast the data down the pipe at top speed. Whether they were successful is a tough call. Today, TIBCO and Talarian performance benchmarks show the companies neck and neck. However, on bandwidth consumption, there is no comparison. TIBCO uses a ton. Clearly, TIBCO can benefit from Talarian's messaging.

Talarian was founded with the defense industry in mind. As a result, the technology is not only lightning fast but remarkably reliable. These two features and its light resource consumption have made it attractive not only to defense contractors but also to many segments of the financial services industry. And once these customers were up and running on Talarian, they were little inclined to be wooed by TIBCO sales personnel. Now, of course, they will have no choice but to listen. TIBCO and Talarian are effectively the only two players in this market segment. Access to these clients and the opportunity to sell TIBCO add-on products to a Talarian underpinning are almost certain to pay back in short order Talarian's rock-bottom sales price.

MIDDLEWARE WATCH

ANDREW BINSTOCK

Talarian went public in mid-2000 at $24 per share; by the time of the acquisition, the stock had fallen to under $3. TIBCO went public in mid-1999 at a split-adjusted price in the midteens, where it remains today. (In between, the Internet bubble pushed it all the way to $125.) Talarian's low price is not a function of the technology, nor of the dot-com shake-out; pure and simple, it results from Talarian's consistent inability to market itself. Talarian was founded by engineers who spent their time focused on refining their technology (to good effect). TIBCO, meanwhile, had the insight that once they had sold the pipes to their customers, they had an opportunity to sell other products that depended on those pipes. As a result, TIBCO was able to leverage each sale into a significant customer relationship into which it sold portal products, B-to-B, EAI and the like. In fact, in many cases the sale was generated by these other components.

Meanwhile, Talarian was working on new and different messaging formats: two separate JMS products, creative uses of multicast and so forth. You can guess which company the market rewarded, can't you?

Conversations with TIBCO's chief strategy officer, Fred Meyer, suggest that the company is still developing its plans for the various parts of Talarian. TIBCO clearly will keep Talarian's fundamental messaging technology, SmartSockets. Not only does it need to do so for the sake of the clients it just acquired, but it fills out TIBCO's need for a proper server-based publish/subscribe implementation. TIBCO will likely keep Talarian's implementation of Pragmatic General Multicast (PGM, which is a reliable way of doing IP multicasting, originally called Pretty Good Multicasting—until it turned out "Pretty Good" was a trademark). TIBCO was about to release its own version, but as Meyer points out, Talarian's PGM was more vendor-neutral and better productized. This aspect is due to Talarian's 2001 acquisition of Chicago-based White Barn, a company that specialized in multicasting software.

Meyer was clear, however, that Talarian's two JMS products would both be scrapped in favor of TIBCO's just-released JMS. I presume legacy versions will be maintained for the existing Talarian customers, but no other sales will go forward. In view of the unremarkable independent JMS market, this move makes good sense.

It's clear, however, that as TIBCO merges the product lines, it will have to do so slowly. Customers of messaging systems are notoriously gun-shy when it comes to change, especially when they have a product they like and that works well. However, TIBCO's acquisition is a bright move and—if it receives regulatory and shareholder approval—one that is likely to serve TIBCO well. ▮

Andrew Binstock is the principal analyst at Pacific Data Works LLC.

LETTERS

◂ continued from page 23

www.sdtimes.com/news/046/story1.htm], it quotes the company's Neil McGovern as stating: "Companies are receiving funding at the project level rather than initiative, multiyear funding. We are seeing focused, ROI-driven projects."

I work for a small business (<100 employees, <$20M yearly revenue), but…we are embarking upon an initiative that will transform the company within five years. As Information Architect, I have been invited to participate in the core meetings concerning this plan.

Over the past couple of years, I designed and developed the app that models the company's information base. Every single employee in the company uses it, no matter what his or her job spec. It models everything the company does.

This has led to an appreciation on the part of the directors that their most valuable asset is the database. They have become aware that tomorrow's plan profoundly affects today's database. And that explains my invitation to these crucial meetings. When they are still in the modeling stages, they are at least vaguely aware that it must also be modeled in the database.

The irony in all this is that Sybase sold the original code for MS-SQL to Microsoft. Granted, Microsoft transformed it thoroughly and created a great product—dollar for dollar the best in the commercial marketplace in my opinion. But Sybase could have done that, too—and through whatever lack of foresight chose not to do it.

I could go on about the bugs in various releases of PowerBuilder, but I won't, except to say that it was so buggy it painted itself into a corner—used only when the functionality required was beyond the capabilities of VB.

Arthur Fuller

MISSPEAKING ON E-SPEAK

In Steven J. Vaughan-Nichols' column "Web Services: For Real" [Jan. 15, page 25, or online at www.sdtimes.com/cols/javawatch_046.htm], I think there is a bit of a misstatement: "HP, after taking a brief dead-ended side trip to e-Speak (www.e-speak.net), which is now an open-source project with little HP support, has turned its attention to delivering Web services."

I was formerly a senior architect on e-Speak. The e-Speak effort went on for several years and was targeting open source almost from the point of coming out of the HP Labs. If you really examine the architecture and distribution, it is still ahead of the current state of the art, and I think you will see Web services adopt more features that e-Speak was researching, such as their services framework. Coming from the labs however, e-Speak never really had productization in mind until the very end, and then the Bluestone acquisition caused the integration.

John Harby

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OH, PLEASE! NOT ANOTHER VENDOR FIGHT!

Here we go again. Just once I'd like to get through a month without a religious standards or software initiative war. But, no, I'm not so lucky. After being on the stove since December, the Eclipse (www.eclipse.org) versus NetBeans (www.netbeans.org) pot is boiling over.

Isn't that just what every developer and manager needs? I really don't think we need yet another fuss over standards and who has the better development environment, do you?

On one side, we have Sun representatives making faces at the IBM-sponsored Eclipse and saying things like, "IBM wants to corrupt Java by forking it." Boy, that's a lot to put on a multivendor open-source attempt to provide what the Eclipse Project calls a "full-featured, commercial-quality, industry platform for the development of highly integrated tools." In other words, it's not much more than yet another Internet-based Java development platform.

In all fairness, there are some real reasons for Sun's claims. Eclipse, for example, for now must have the non-Java Standard Widget Toolkit (SWT) library to run.

On the other side, IBM has been making catty comments about how Eclipse does more and is better than Sun's NetBeans. While NetBeans hasn't been moving forward as quickly as many would like, I find it hard to believe, as some claim, that the 3-month-old Eclipse is already superior to years-old NetBeans. Come on, guys, my programmers can work *with* Sun's NetBeans-based Forte for Java to make programs today, or they can work *on* Eclipse. Which one do you think will be more productive for today's bottom line?

JAVA WATCH

STEVEN J. VAUGHAN-NICHOLS

Those are not just my thoughts. I've spoken to several programmers who have used NetBeans. Discouraged by its speed, they've given Eclipse a try. Of course, Eclipse did just what you'd expect such a new tool to do: It broke. In fact, it broke a lot. But what else can you expect from such a young system? If you want people producing production code today, you're going to be using NetBeans, not Eclipse.

Now make no mistake about it. Eclipse looks like it will be good. Not only did IBM pour $40 million into the organization, but Eclipse also has Borland, Macromedia, Rational and other development tool vendors on its side. Plus, it has middleware players like Bowstreet and Interwoven, and operating system and development companies like QNX, Red Hat and SuSE on its side. Whatever else this may be, it's more than a simple IBM versus Sun squabble.

Sun also has been whining—I don't know another word for it—about how IBM is trying to wreck the Java Community Process (JCP) by shoving two new specifications, JFace and SWT, down Java programmers' throats. Oh, come on. IBM with Eclipse isn't Microsoft with J++. Besides, word is that IBM will be taking JFace and SWT through the JCP. After all, Marc Erickson, one of JFace's creators, is also on the JCP Executive Committee for J2ME.

What's really going on here?

I see it as a catfight. IBM and its friends have grown impatient with what they see as Sun's slow pace and tight control of NetBeans. So it was that Eclipse, which does indeed address most of the same issues that NetBeans does, was born. Sun, one of the very few serious Java players who's not involved in Eclipse, claims that it was not invited to participate—but it could ask to be admitted to the Eclipse Project instead of whining.

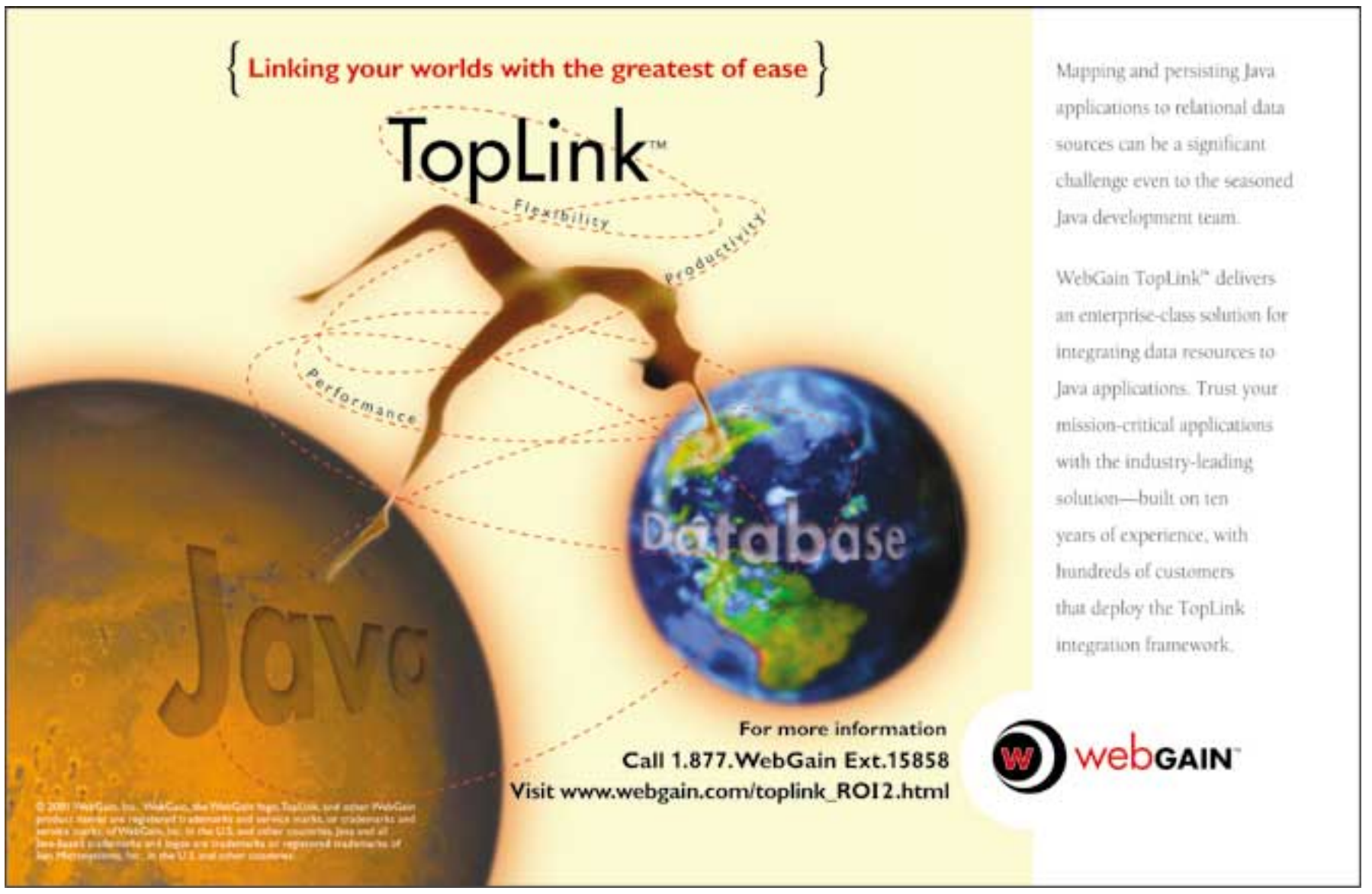
It's a nasty fight because Sun and IBM are major rivals. For instance, IntelliJ's IDEA 2.5 is a worthy competitor to NetBeans, but I don't hear Sun beating on it with the vigor that it has attacked Eclipse. Why? Because IntelliJ is an ordinary competitor, not a mortal enemy.

One of the ironies of this fuss is that both NetBeans and Eclipse are open-source projects. The dream that software development would go more smoothly simply because the source code was available to all has turned back into the old proprietary development tool nightmare.

So what do we get out of all this? Well, nothing. For right now, we keep working with NetBeans, IDEA or another mature IDE environment. If you have developers with time on their hands, you might as well give Eclipse a try. With all that backing, Eclipse may, by say 2003, become an important part of your production environment.

You might also want to talk to your Sun and IBM representatives and ask them to play nice with each other and put this issue behind us. After all, if they keep fighting tooth and nail, there can be only one winner, and that's not Eclipse or NetBeans. It will be Microsoft with .NET. ▮

Steven J. Vaughan-Nichols has been writing about technology for more than 15 years and also has worked as a programmer for NASA and the Dept. of Defense.



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DEVELOPING FOR PRIVACY

I was listening to the outrage of a marketing VP from a communications software company. She'd signed up for Microsoft's Passport service, and had chosen to opt out of all marketing and other forms of contact from Microsoft. But that didn't stop the flood of spam from filling her mailbox the next day and from then on. She was, she said, going to call Microsoft and then the attorney general of her state—which, oddly enough, happens to be Washington state.

Of course, the last thing Microsoft needs is another inquiry from a state attorney general. And while some may say this is evidence of a cynical plot from Microsoft, there's no indication it's more than carelessness or a simple mistake.

Still, if it can happen to Microsoft, it can happen to you. The best way to make sure it doesn't is to design your Web sites with privacy in mind from the beginning. Start by looking at the information you request from your site's visitors. Here, we're talking about more than just the information visitors may fill out on a form requesting registration or product information. In addition, what information are you extracting via their Web connection? Are you trying to determine what sort of browser they have? What sort of computing platform? Are you placing cookies in their browser? Are you tracking their movements or purchases?

Briefly, if you're getting any information at all from visitors to your Web site, you need to consider the privacy implications. You also need to develop a privacy policy and publish it on your site. Fortunately, you don't have to actually develop the policy. That's the job of your legal and marketing departments. Don't be surprised, however, if those departments bounce the job back to you, claiming they have no idea what you're talking about.

WEB WATCH

WAYNE RASH

So how do you start?

First, determine if you're asking for or extracting any information at all, and if you are, what that information might be. You'll need to forward this along to whoever is responsible for your policy once the finger-pointing is finished.

Second, decide if you actually need all the information you're gathering. You might be surprised at what you're asking for. And you might not need it all.

Third, once you've settled on what information you need, develop a level of protection appropriate for that information. You probably don't need any protection if all you're seeking is the type of browser your visitors are using. On the other hand, personal and financial information needs to be handled using a secure connection, and stored in a secure database.

Fourth, verify that the information is handled in a way that's supported by the software you're coding. For example, if you allow a visitor to opt out of some types of marketing, are those choices being recorded? If they are recorded, where is the information going? Are you sure it's getting there?

Once the lawyers are done working on the privacy policy, you can take your final steps. These include making sure that the policy is clearly displayed on your home page and on every page where personal information might be requested. Of course, you'll have to check the policy once it's completed to see what other impact there might be from whatever the lawyers have dreamed up. You might easily find yourself making changes to the work you've done, or adding additional functions. For example, if you use credit bureau information, you might have to introduce links to the credit bureaus.

Once you've done all of this, it's critical to test it. And by testing it, I don't mean a casual run-through by the programmers. We're talking about serious user-based testing to see that anything the user does is handled properly by your software. You don't need to create irate users because you didn't test the opt-out feature and it doesn't work.

If that's as far as you go, you're probably safe. You've instituted a privacy policy, it's on the Web site, and you're satisfied that the software on the site implements the policy as written. But there's one more step you can take, even though you'll probably have to do it through a recommendation to the marketing people. Consider displaying the TRUSTe logo on your site.

TRUSTe is an organization that's working to take the fear out of Web use by helping companies create good privacy policies, and by helping to make sure that those policies are followed. The idea is that if your users or customers visit your site and see the TRUSTe logo, they'll feel more confident about providing personal or financial information. There's also a TRUSTe logo for kids available, so that you can certify that your site meets federal requirements for the collection of information from visitors age 13 and younger. You can get more information from the site at www.truste.org.

You'll notice that I didn't discuss what your privacy policy should be. That's for senior executives at each company to decide. As long as you implement it correctly, it's not your problem. But it is your problem to make sure you protect your visitors' information, and that you do what you say you're going to do with it. After that, you're off the hook. ▮

Wayne Rash is a technology journalist and consultant.

.NET TALKS WEB SERVICES

I never tire of watching the IT marketing machine shift everything in the blink of an eye. While Web services have been buzzing around the beta periphery for some time, they have leaped into the limelight with the release of Microsoft's Visual Studio.NET and the .NET Framework to subscribers of the Microsoft Developers Network.

Ok, so what are Web services? Basically, Web services let disparate application types communicate and interact using the Internet as the medium. The idea is that by surrounding business logic with a Web communications layer (read, XML), programmers will be able to streamline business process development since much of the glue and integration chores normally associated between different application types will be handled by XML. It's a component model based on the Web rather than on any individual programming language. For application developers, it means that your component can invoke methods on another component (yours or someone else's) over the Web as easily as it could over your local network.

I chatted with Microsoft in mid-January about Visual Studio.NET and its .NET strategy in a shoebox of a hotel suite in New York City. The discussion clearly showed that while .NET and Visual Studio.NET aren't designed solely for Web services development, they do illustrate just how important Microsoft believes Web services have become.

Visual Studio.NET contains several Web service-specific tools, and Redmond is releasing more as I write. A key example is the ASP.NET Web services project template. Just click the template icon in Visual Studio.NET's template library (one of a large number of friendly features in this IDE) and Visual Studio.NET automatically generates all the underlying XML code required to deploy the service, and can even offer sample code for core logic—a mouse click for creation followed by several keystrokes or possibly just a few additional mouse clicks to add working properties. I'm not usually a fan of generated code, but Visual Studio.NET's drill-down ability does an admirable job of letting developers be as lazy or as granular as they wish.

WINDOWS WATCH

OLIVER RIST

Visual Studio.NET's integration with UDDI (Universal Description, Discovery and Integration) will also be important to Web services developers. UDDI amounts to a global, Web-based directory of Web services components that's integrated directly with Visual Studio.NET. For those developing new code, it acts as a giant code search engine allowing developers to search for outside Web services components that fit their application. It also allows developers to register their own Web services within UDDI. While this has an open-source feel to it, especially since access to UDDI is free for Visual Studio.NET users, a pricing model for the use of individual Web services components is still a bit foggy, though "free" is definitely not the operative word.

Even outside of Visual Studio.NET, Microsoft is releasing Web service-oriented tools. For those of us who were worried about Microsoft's Office security when VBA was released, get ready for more meat with the release of the Office XP Web services toolkit. The toolkit allows not only developers but also tech-savvy power users to access UDDI in search of Web services they can use to string new Office applications together. This is a powerful new tool for Office developers, and while some of us pessimists are worried on the security front, Microsoft has instituted significant new security features from code access on up to the platform level.

Combine the .NET Framework, Visual Studio.NET and the upcoming Windows.NET Server initiatives, and Microsoft is steamrollering into the Internet applications development and application server space. Talk to a Microsoft representative about it, though, and the immediate goal isn't so much domination as it is communication. The Web services strategy works only if it's supported by multiple vendors, and that must include the Java crowd as well as the ASP folks. For its part, Sun, as well as companies such as BEA, Borland and others, have all adopted Web services as the new Holy Grail and are busy releasing tools and frameworks specific to their languages that will nevertheless use XML (and hopefully by extension, SOAP and WSDL) to communicate with Web services created in other environments, including .NET.

That means Microsoft and everyone else finally will begin competing based on the robustness of their development environment and its associated tools rather than by merely corralling as many users as possible into a proprietary platform. That sounds like Redmond lackey-talk, but I've got to hand it to Microsoft as Visual Studio.NET really does show the company's commitment to this strategy. Instead of trying to "Borg" Java, they've simply opened the doors of communication to it and built a robust, friendly and highly extensible architectural alternative. Important questions remain to be answered by the real word, including not only how well the new security model will work but even whether SOAP and WSDL can live up to expectations. The .NET strategy is by no means proven, but only a fool would ignore it. ▮

Oliver Rist is a freelance technology journalist and vice president of technology at AIC Inc.

LOWEST COMMON LINUX

Unix, according to Free Standards Group executive director Scott McNeil, is "coming in for a soft landing." What will be the fate of its popular and rapidly maturing successor, Linux?

McNeil was at the LinuxWorld Conference and Expo in New York late last month to announce the Linux Standard Base 1.1, which he touted as the key ingredient that will hold Linux together and prevent it from going the way of, well, Unix. Yet McNeil sounded more like his near-namesake, Scott McNealy of Sun Microsystems, when he said Linux distributors and application providers should "cooperate and unify on the platform but compete at a level above it."

INDUSTRY WATCH

DAVID RUBINSTEIN

All this talk, as well as the creation of a standard base for the Linux operating system, is designed to prevent the fragmentation and competition that effectively ruined Unix, or at least ruined the possibilities of the major Unix vendors working together to jointly improve their technology, increase interoperability, and develop a unified marketing message that promoted the operating system. While McNeil acknowledged that vendors might add proprietary items to a Linux distribution to add value for its specific users and their applications, Linux developers will always know that if they write applications to the Linux Standard Base, they will run on any vendor's Linux distribution so long as it complies to that base. McNeil said he likes to call it "the Rosetta Stone for open-source software." It might also be called a lowest common denominator.

The standard base is defined by the Free Standards Group, which is made up of a large number of participating vendors that control what is built into the base. Sounds like the core Java J2*x*E specifications created by the Java Community Process, does it not? So while Linux may avoid going the way of Unix, it might not be able to avoid going the way of the Java platforms, which have a standard base as defined by the Java Community Process but are threatened with coming apart at higher levels as individual vendors add their own features. The JCP, also a vendor consortium, has been criticized for political infighting and a slowness to incorporate new technologies, which is one possible cause cited by critics for fissures occurring in the platforms.

McNeil acknowledged that there are already many variations among the most popular Linux distributions, which create problems for application developers. Programmers often have to choose an implementation to target and commit to it, he said, adding that the LSB will allow developers to write to that set of standards and then that application will run on everything that's compliant.

"The differences are minor, but they're still a 'gotcha,'" McNeil said. "But we're not replaying the Unix wars here. There still is only one Linux kernel." That last point is critical; if Linux were to splinter to that extent, it would die. A big contributing factor to the split, and ultimate shrinkage, of Unix was that the operating system was being distributed by big hardware vendors such as Digital, IBM, Hewlett-Packard and Sun. If they could create features unique to their versions of Unix, it meant the company could sell more boxes. And, by creating these unique feature sets, the vendors were competing for developers; if you could get developers to write to HP-UX instead of AIX, you had a better chance of gaining wider acceptance. In the Linux world, there has been distinct separation between hardware vendors and operating system distributors, as well as tools vendors, independent developers and ISVs.

Peter Beckman, vice president of engineering at Linux operating system vendor Turbolinux, said standardization is critical for the acceleration of application development, which he said would remove one more argument against acceptance of Linux as an enterprise solution. "When you develop software for Windows, the issue isn't NT," he said, "it's Microsoft Foundation Classes, and whether the tools are compatible. On the Linux side, application developers need to know the functions for internalization, or the graphical codes for pop-up windows so the widget will appear on screen."

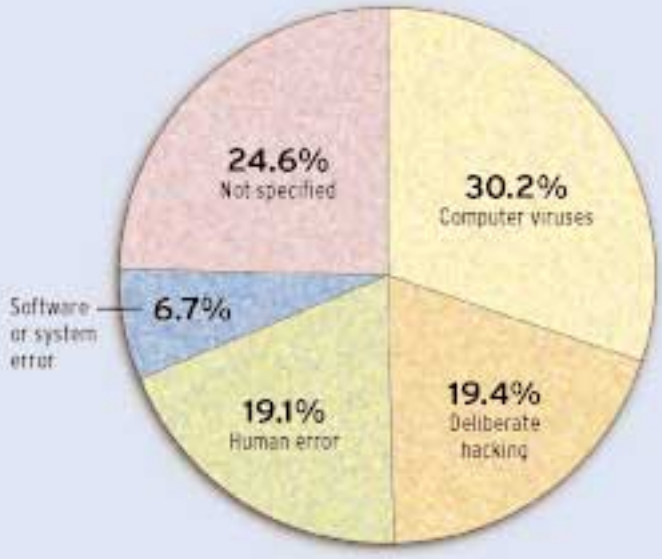
Along with the LSB, the Free Standards Group announced it will launch a certification process later this year for commercial products, and released a full set of tools for the internationalization of Linux, called Li18ux 1.0. "A developer can go to any Linux machine anywhere in the world and it can be localized to his needs," McNeil boasted. Another critical point: the legion of Linux and open-source developers out there who will demand that the operating system be maintained as a standard.

Only three years ago, Linux belonged to the hacker, the Unix enthusiast and the anti-Microsoft zealot. Now, companies such as Borland, Computer Associates, IBM and others are helping to shape its future. You might have missed the coming-out party for Linux, but it's not too late to get a tux. ■

David Rubinstein is executive editor of SD Times.

When Database Security Is Breached, What Is the Cause?

EVANS DATA WATCH



Database security is a real problem. In the latest Database Developer Survey, 12.3 percent of respondents indicated that their company experienced a security breach directly against data in a database server. That's a high percentage, given that most hacks and attacks are against more public-facing Web servers or middle-tier devices—not the back-end database.

Of those reported hacks, about one-third indicated that they were caused by computer viruses coming over the Internet. Although one could argue that these are untargeted security problems, the second most popular response—deliberate hacking into the database, reported by about one-fifth of respondents—is more worrisome. Another fifth reported human error, such as accidental file erasure, as a common cause of security breaches. A smaller number blamed software or system error for security problems. Nearly a quarter of those surveyed did not disclose the type of breaches experienced.

Source: Evans Database Developer Survey, 2002 Vol. 1 ©Evans Data Corp.

www.evansdata.com

BUSINESS BRIEFS

Leaving **Microsoft Corp.** apparently was the right move for four former high-level software programmers there. **Westside Corp.**, the company they formed in late 2000 to run a hosted development environment for building database-driven Web sites ("Westside Story: Ex-Microsoft Visionaries Create Hosted IDE," Nov. 15, 2001, page 1), has been acquired by **BEA Systems Inc.** for an undisclosed sum . . . A number of earnings reports over the past month reflect the continued sluggishness of the global economy. **Sun Microsystems Inc.** reported second-quarter earnings of $3.1 billion, 39 percent lower than a year earlier. Net loss for the quarter, which ended Dec. 30, 2001, was $99 million, or 3 cents per share—a 40 percent improvement over first-quarter numbers but down 121 percent from year-ago earnings . . . Enterprise testing solutions provider **Mercury Interactive Corp.** showed a $34.2 million profit (38 cents per share) on $361 million in revenues in 2001, down from $64.7 million (70 cents per share) on $307 million in revenue for fiscal year 2000 . . . **Computer Associates International Inc.** announced a net loss of $231 million, or 40 cents per share, for the company's fiscal third quarter ended Dec. 31. Total revenue for the period was $749 million . . . **Telelogic Inc.** reported revenues in its fiscal fourth quarter declined to $36.4 million from $42 million a year earlier. Fourth-quarter earnings were $4.8 million. For fiscal year 2001, Telelogic posted earnings of $13.2 million on revenues of $143.3 million, compared with $84.5 million in revenues in 2000 . . . Content management solutions provider **Stellent Inc.** showed 36 percent growth in its fiscal 2002 third quarter compared with year-ago numbers, posting revenues of $26.6 million for the period against $19.5 million in fiscal 2001 . . . Development tools maker **Borland Software Corp.** reported revenues for 2001 were 16 percent better than for 2000—$221.8 million from $191.1 million. Net income for the year increased almost 12 percent to $23.1 million, or 31 cents per share, as compared with net income of $20.7 million, or 30 cents per share, in 2000. ■

CALENDAR OF EVENTS

Internet World Wireless East & Pocket PC — Feb. 20–22
New York
PENTON MEDIA INC.
www.internetworld.com/events/weast2002

BEA eWorld — Feb. 24–27
San Diego
BEA SYSTEMS INC.
www.beasys.com/events/eworld/2002/sandiego

CT Expo — March 4–6
Los Angeles
CMP MEDIA LLC
www.ctexpo.com/ctx

Embedded Systems Conference — March 12–16
San Francisco
CMP MEDIA LLC
www.esconline.com/sf

CTIA Wireless — March 18–20
Orlando, Fla.
CTIA
http://wireless2002.ctsg.com

JavaOne — March 25–29
San Francisco
SUN MICROSYSTEMS CORP.
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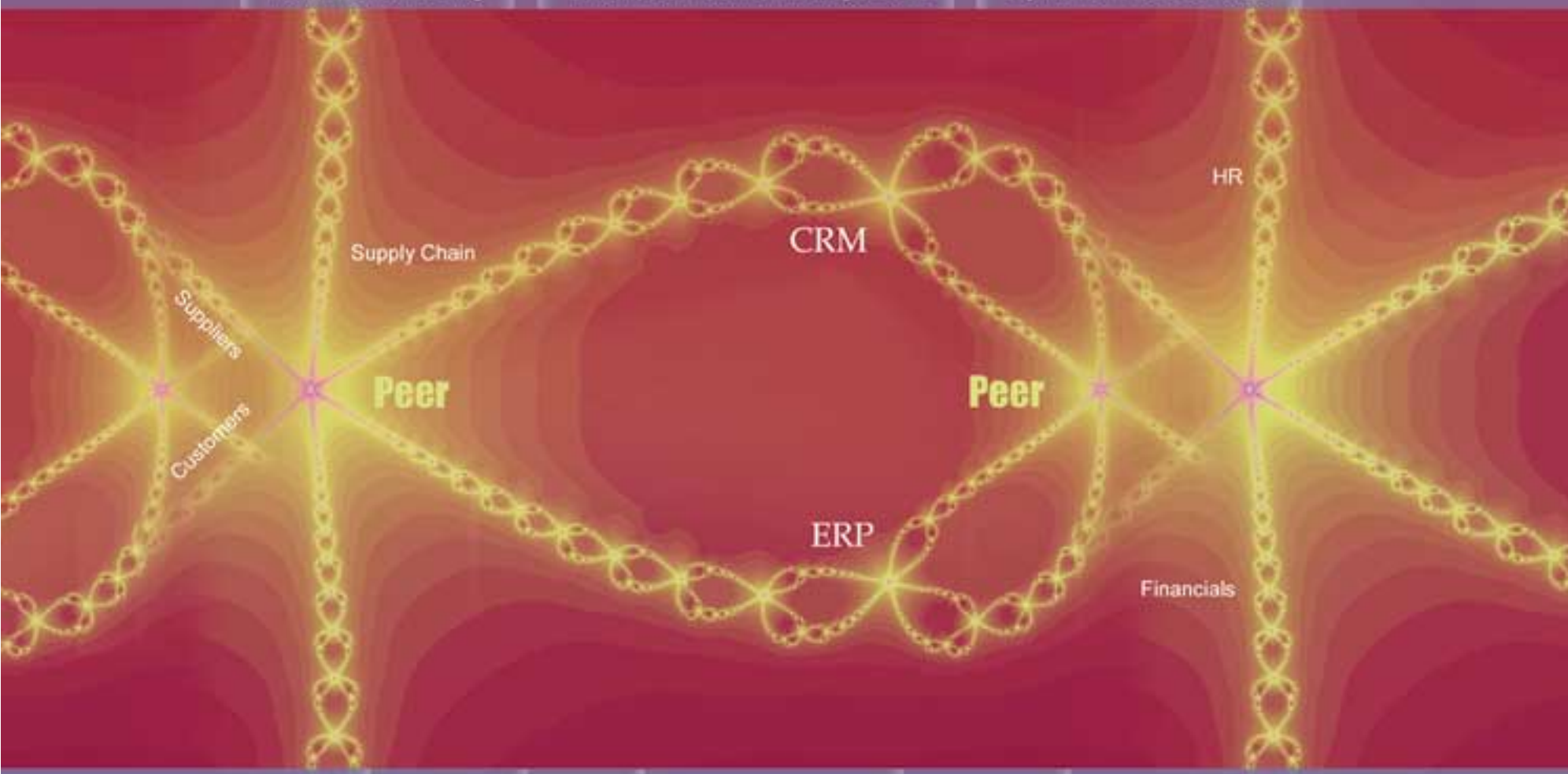

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